

# TESLA MOTORS, INC.<sup>1</sup>

*“Tesla’s mission is to accelerate the world’s transition to sustainable energy”*



TESLA

## 1. INTRODUCTION

Tesla Motors is an automobile company based in the US, listed in the NASDAQ stock exchange (TSLA). Tesla is not just an average automaker but also a technology and design company strongly focused on energy innovation.

Founded in 2003 by five California-based entrepreneurs, its current CEO is Elon Musk. At that point little did they know of the potential of this firm. In fact, their first car was not announced until 2006 and put out to the market until 2008. The Tesla Roadster was the first mass produced 100% electric vehicle (EV, from now on) legally available for purchase worldwide.

Tesla’s headquarters is located in Palo Alto, California, where much if not all of its technological innovation is being made. As of October 2016 all of their cars are produced and assembled at the Tesla Factory in Fremont, CA, just 20 miles away from Mr. Musk’s office. Also notable is the Tesla Gigafactory, still under construction, a 2 million sq. ft. facility near Reno, NV, a joint-venture facility with Panasonic (a conglomerate company), which outputs most of the lithium-ion battery cells that power the cars. Around 6,000 people and 400 people are employed in both plants, respectively.

Tesla currently offers three different cars (the Model X, the Model S and the Model 3, the latter still not available as of 2016) and a complementary service (Supercharging stations, where Tesla car owners car plug in their vehicle and enjoy a faster recharging time). A shift from luxury sport cars to more affordable vehicles is observed and it is expected to continue along the same lines as EV production is ramped up and competition tightens to attract the masses. The first car (the Roadster, currently discontinued) was a luxury sports car priced at \$110.000 and the newest model, the Tesla

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<sup>1</sup> A work written by Ivan Agudo, Eduard Casanova, Marc Esgleyes, Iñaki Martínez de Morentin and Victor Recacha, under the supervision of Oriol Amat and recommendations from Raffaele Manini

Model 3, starts at \$35,000. All in all, each generation of vehicles is sold at a cheaper price than the previous one for the purpose of increasing the customer base and gaining market share.

Tesla's CEO Elon Musk is seen as a driving force not only for his company but also for the automotive and technologic industries. Born in South Africa, his experience in founding and managing industry leading companies (PayPal, SpaceX, SolarCity) clearly helped to the success of Tesla. Having received a BSc both in Physics and Economics, he went on to do a PhD in applied physics, but ditched the program to pursue his business ventures. Many of his enterprises gained from his personal wealth in their early stages, which is a big plus in terms of independence and managerial momentum.

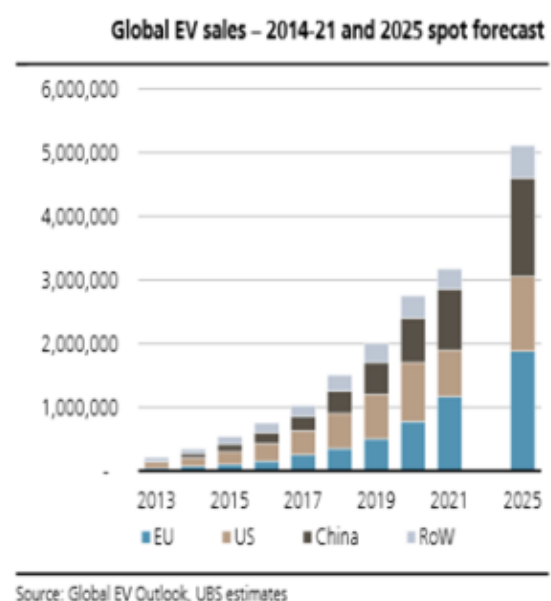
Tesla Motors stands now as a big leading company with good short term prospects, both in the results and market value (mainstream financial outlets consider TSLA a good buy/hold as of October 2016) side of things and in product innovation and managerial strength. However, players in such new and fast changing industries rise and fall with ease, so we must first analyze the situation of the market and main competitors to assess more accurately if the high expectations are likely to be met and how rough the road ahead might be.

## 2. INDUSTRY OVERVIEW

### Situation of the EV industry

Growing fast and with rocketing demand, the EV industry is a very strategic sector. Globally, sales are growing exponentially and are expected to keep following this trend in the future. By 2025, it is estimated that around 5 million EVs will be sold annually, roughly a tenfold increase. Therefore, there seems to be plenty of room to keep growing.

As of 2016, there are 4 main markets for the EV industry. These are China (41% of sales are made there), Europe (32%), the US (20%) and Japan (5%). Theirs represents 97% of the world's EV demand.



The popularity of EVs remains today relatively low. EVs still represent less than 1% of total car market share in most countries (only in Europe and Japan is this figure improved). Norway is where they are today more widespread, with around 1/4 of car sales going to EVs, while hybrids dominate with more than 2/3 of the market (the government gives relatively large subsidies to EVs through a program to incentivize the transition to green mobility). Moreover, a huge expansion for this market is expected in Europe and China.

### **Key success factors in the EV industry**

The automotive industry will be split in two principal agents for our following analysis: EVs and internal combustion engine vehicles (from now on ICEVs). These main groups act as complex complementary goods, when one is increasing its performance the other faces difficulties.

Energy is an agent very important for this analysis. The fact that fossil fuels are running out propose a new scenario, where EVs represent not only an economic alternative to traditional ICEVs but also are considered more ethical and environmental options.

Depletion of fossil fuels implies an increase in gas price and a mobilization of NGOs and governments in favor to more renewable sources of energy, also knowing about the amount of CO2 emissions. The last ones can have the option of investing in EV infrastructure, and the rise in gas price affect negatively ICEV attractiveness and accordingly its demand.

Better conditions for the EV sector are shown up to now. Following that cycle, a jump of EV sales leads to technical and technological improvements in this type of cars and therefore more sales and supposedly reduction in costs.

### **Strengths**

- Strong sales growth has been present during last few years thanks to the diversity of vehicles offered to the customers, going from expensive luxury cars to more affordable ones and adapting to the needs of customers.
- In relative terms, fuel is expensive. Electricity is not. Even more, the new Tesla and SolarCity merger promises integrating super-efficient solar panels into the houses of consumers, which would achieve faster recharging times at an all-time low price.
- EV prices falling as production capacity and technology make progress. EVs are expected to be cheaper than ICEVs by 2022, an ultimate strength against ICEVs

## **Weaknesses**

- Cars are powered by lithium-ion batteries, a common technology but Tesla must deal with the quirks of making these batteries safer and more efficient (i.e. drivers can go longer without recharging). Batteries produced in the Gigafactory are exclusively implemented on Tesla cars so assessing the profitability of said manufacturing plant is even more difficult.
- Tesla has been spending huge amounts of cash due to investments in research and development, as well as for the Gigafactory placed in Nevada in order to provide its cars with latest technology and innovation available.
- The debt the company is using to finance its activity is quite significant and increasing interest payments have a large impact on earnings. A capital increase is most likely a temporary solution to both the lack of liquidity and financing costs. For sure, the growth of the firm will be constrained either by an impossibility to renegotiate debt (cutting financial expenditure) or by the sale of proprietary shares in an attempt to improve liquidity.

## **Opportunities**

- When launched, Model 3 may be an industry game changer. Tesla offers its usual quality and innovative features (including the new self-driving mode) at a competitive price, starting at \$35,000, representing a potential reason to believe in the increase of sales and thus, becoming the world leader in EVs.
- The industry has a high average in costs of manufacturing electric vehicles. A great opportunity would be to bring costs down. Tesla is actually carrying out that exact strategy with the setting-up of the Gigafactory, decreasing the costs.
- The incoming market transition to renewable sources, and cleaner cars. Depletion of fossil fuels puts a long-run deadline to the sector that pushes firms to innovate.

## **Threats**

- EVs may become a much more competitive market. An EV motor is already cheaper to manufacture than an internal-combustion engine. EVs may become cheaper to develop than normal cars (today combustion engines take much of automakers' investment, while electric motors and batteries are already cheaply produced for many purposes), so many new companies would be able to afford produce cars, not needing to be a giant, as now, in order to produce in a less capital intensive industry.
- If R&D of hydrogen fuel cells pans out, this technology may become a better clean alternative than EVs, posing a major threat for this sector.

### **3. COMPETITION**

Tesla Motors faces harsh competition from both world automakers and smaller national producers (the latter mainly in China). As a pioneer, it dominated the EV market after launching its first model in 2008, but it could not keep up with automotive industry giants when they joined the market in 2010. Since then, Nissan has been the world EV leader, and the Nissan-Renault Alliance has more than doubled the number of EVs produced by Tesla Motors.

This is exactly the framework in Europe, where the Nissan-Renault Alliance still leads by far. There have been remarkable breakthroughs by Tesla, though, being able to place its Tesla Model S as the 3rd best selling car in Europe in 2015.

In China, Tesla's sales are strong (China is one of Tesla's main markets, along with the US and the Single Market) cheap domestically produced cars dominate the market. BYD has the lead, followed by 7 Chinese brands, after which comes Tesla, so Tesla is also coming along slowly and with difficulty there.

However, the US, Tesla Motors' home market, presents a different picture. It has faced hardships, rivaled by the Nissan LEAF (best selling EV of all times). Even so, Tesla Motors has been able to achieve a rocketing increase in sales, due to the industry expansion and the fact that, despite the challenges, it took the lead for US EV sales and as of October 2016, Tesla's share of the US EV market for that year has climbed to 31%, with only Nissan's LEAF and plug-in hybrids (mainly by General Motors and Ford) being remarkable competitors. This is significant because the US remains by far the main market for Tesla.

Tesla is expected to continue this trend and register its best ever results for the US in December 2016, After that, it is widely expected to face more pressure, due to new moves by competitors in 2017, especially the launch of the Chevrolet Bolt EV and the Toyota Prius Prime, and the upgrade of the Nissan LEAF.

### **4. PRODUCT LINE AND SERVICES OFFERED**

Tesla's product line consists, for now, of three electric vehicles available for purchase to end consumers and a line based on electric technology, engineering and storage, still in its development phase, branded Tesla Energy.

We will now focus on the cars and their main success factors:

### ***Model S***

“A four-door sedan that brought Tesla to the masses”. Its first mass produced vehicle, capable of accelerating from 0 to 60 mph in 2.8 seconds and 288 miles per charge, auto-pilot ready, it is still the main choice for consumers due to the expected upgradability (the car depends highly on software features, which are updated frequently) and high safety standards.

### ***Model X***

“High-performance, sport utility vehicle”. This newer model is aimed to more demanding customers, with a capacity of up to seven adults and a falcon wing door system.

### ***Model 3***

“Affordable, self driving luxury sedan”. The last addition to the product line, with deliveries planned for the end of 2017. The newer models promise higher efficiency and range, paired up with what Tesla believes will be the ultimate autopilot mode, capable of dealing with even the most complicated road situations. Some concerns have been raised about the fact that about 373.000 reservations have been made for this car: many believe that a lot of the reservations are duplicated, and many others that Tesla cannot sustain the production of that many cars or meet the delivery dates.

All Tesla orders are placed through their website or sold in physical stores, located in malls and shopping centers and also serve as small expositions of the cars and technology. Tesla has more than 190 retail stores and plans to grow international. Tesla follows the example set by consolidated tech companies like Apple in regards to their retail plans: their stores serve more as an exposition center rather than a proper selling point to the end consumer. For instance, the stores usually display a car and a Tesla powertrain (the mechanical part that goes under the main body of the car).

As for the customers, an interesting shift should not go unnoticed: From its conception, Tesla business plans tend to focus even more on the regular consumer looking for a car. Their cars go from being super-luxury and expensive (the Roadster) to affordable sedans (Model 3) capable to compete on the open market. This shift to affordability calls for an important increase in efficiency and manufacturing scale. Concerns are raised when delivery dates are put on the table: Tesla promises to begin Model 3 deliveries at the end of 2017 but most investors and analysts say this is an overestimation and owners will not be able to enjoy their new cars until 2019.

As Tesla Energy is more of an internal, long-term project we can not account for specific products or dates apart from the vague and probably inflated estimates disclosed on the 10-K report (legal document submitted to the regulation institution, the SEC). As it will become clearer when analyzing

the Balance Sheet, Tesla's IP and other properties represent a good share of assets, which will help the reader understand the short-term financial problems faced by the firm.

## 5. FOCUSING ON THE TESLA MARKET

Tesla's aim is to lead a disruptive innovation process in the automotive sector in order to advance towards the development and consolidation of a more sustainable mobility model. Disruptive innovation implies that the introduction of the new technology or product (in this case, EVs), replaces the established market (the car market) with a new one. This kind of revolution is unlikely to be promoted by a major established firm, as developing all-new technology tends to be way costlier, riskier and also takes more time than just upgrading or improving the existing one. Moreover, the resources it takes are much-needed to keep up with competitors who are just upgrading (and not developing all-new) technology. That is why this kind of sharp advances usually (of course, there are exceptions) come from agents external to major established producers. Tesla intends to be this outsider to the market that introduces the breakthrough and pushes for its diffusion.

At first, EVs were not exactly disruptive because of its high cost and relative disadvantages (small charging infrastructure, autonomy, etc.). Indeed, even in 2016 conventional vehicles still dominate the car market in most parts of the world. However, many major automakers noticed the possible threat EVs posed, so they started developing EVs or other greener, more efficient alternatives. This has already changed the industry, and eventually the disruption is likely to take place.

The only question mark is whether Tesla, with its rocketing amount of debt and its uncertain financial situation, will finally be able to lead the revolution in the automotive sector. For now, it is clearly betting everything on its future prospects.

Tesla entered the market not only as an EV producer but also as an expensive brand, trying to consolidate its position in the luxury car market. Its strategy was to keep growing and expanding its production capacity and, while doing so, reducing prices thanks to lower average production costs.

Tesla's cars becoming more and more affordable has meant that the profile of its consumers has also evolved and we can say Tesla's reshaping of the market consists of a model of *disruption from the top*. At first, it focused on high income consumers, looking for different cars in the luxury market. As prices are lowered, the target consumer base expands to incorporate less wealthy consumers, eventually reaching middle class households. This will especially be the case when it launches its

Model 3 at \$35,000. About Tesla cars consumers, we can also say they expect a high-quality vehicle. They probably tend to expect less autonomy and more refueling problems when compared to conventional car buyers, but a Tesla buyer does not necessarily represent the average EV buyer, because Tesla's charging infrastructure is more developed than that of its competitors, whose cars just have access to standard power chargers (this consideration is just the case for territories where the Supercharger is widely available).

In conclusion, Tesla's innovation capacity has allowed it to introduce the EV in the car industry as a potential market disruptor while simultaneously expanding its target market, starting with top income consumers and gradually broadening its reach. It seems fair to say that this revolutionizing process is opening the doors to a massive change in the automotive industry and the way we conceive mobility towards a more sustainable model.



## 6. QUESTIONS

1. *Identify the main financial strengths and weaknesses of Tesla.*
2. *The technological and IP potential seems extraordinarily high, but is that enough to overcome the financial problems Tesla is dealing with in the present?*
3. *May Tesla be involved in some kind of accounts manipulation?*
4. *Would you, as a bank analyst, recommend giving a loan to Tesla today?*
5. *What recommendations would you give to Tesla's direction in order to improve its financial situation?*

## Appendix

Annual report 10-K presented on February 26, 2016. Last data about December 31, 2015.

### BALANCE SHEET (in thousands of \$)

	Dec. 31,		Dec. 31,		Dec. 31,		Dec. 31,	
	2015		2014		2013		2012	
<b>Assets</b>								
Cash and cash equivalents	1.196.908	15%	1.905.713	33%	845.889	35%	201.890	18%
Restricted cash and marketable securities	22.628	0,28%	17.947	0%	3.012	0%	19.094	2%
Accounts receivable	168.965	2,09%	226.604	4%	49.109	2%	26.842	2%
Inventory	1.277.838	15,79%	953.675	16%	340.355	14%	268.504	24%
Prepaid expenses and other current assets	125.229	1,55%	76.134	1%	27.574	1%	8.438	1%
<b>Total current assets</b>	2.791.568	34,50%	3.180.073	55%	1.265.939	52%	524.768	47%
Operating lease vehicles, net	1.791.403	22,14%	766.744	13%	382.425	16%	10.071	1%
Property, plant and equipment, net	3.403.334	42,06%	1.829.267	31%	738.494	31%	552.229	50%
Restricted cash	31.522	0,39%	11.374	0%	6.435	0%	5.159	0%
Other assets	74.633	0,92%	43.209	1%	23.637	1%	21.963	2%
<b>Total Non-current assets</b>	5.300.892	65,50%	2.650.594	45%	1.150.991	48%	589.422	53%
<b>Total assets</b>	8.092.460	100,00%	5.830.667	100%	2.416.930	100%	1.114.190	100%
Accounts payable	916.148	11,32%	777.946	13,34%	303.969	12,58%	303.382	27,23%
Accrued liabilities	422.798	5,22%	268.883	4,61%	108.252	4,48%	39.798	3,57%
Deferred revenue	423.961	5,24%	191.651	3,29%	91.882	3,80%	1.905	0,17%
Resale value guarantees	136.831	1,69%	-	-	7.722	0,32%	4.365	0,39%
Customer deposits	283.370	3,50%	257.587	4,42%	163.153	6,75%	138.817	12,46%
Long-term debt and capital leases	633.166	7,82%	611.099	10,48%	182	0,01%	-	-
<b>Total current liabilities</b>	2.816.274	34,80%	2.107.166	36,14%	675.160	27,93%	539.108	48,39%
Deferred revenue	446.105	5,51%	292.271	5,01%	12.855	0,53%	9.965	0,89%
Long-term debt and capital leases	2.040.375	25,21%	1.818.785	31,19%	181.180	7,50%	3.060	0,27%
Resale value guarantee	1.293.741	15,99%	487.879	8,37%	586.119	24,25%	-	-
Other long-term liabilities	364.976	4,51%	154.660	2,65%	236.299	9,78%	-	-
<b>Total non-current liabilities</b>	4.145.197	51,22%						
<b>Total liabilities</b>	6.961.471	86,02%	4.860.761	83,37%	1.749.810	72,40%	989.490	88,81%
Additional paid-in capital	3.414.692	42,20%	2.345.266	40,22%	-	-	-	-
Accumulated other comprehensive loss	-3.556	-0,04%	-22	0,00%	-	-	-	-
Accumulated deficit	-2.322.323	-28,70%	-1.433.660	-24,59%				
Convertible senior notes	42.045	0,52%	58.196	1,00%				
<b>Total stockholders' equity</b>	1.088.944	13,46%	911.710	15,64%	667.120	27,60%	124.700	11,19%
<b>TOTAL EQUITY*</b>	1.130.989	13,98%	969.906	16,63%	667.120		124.700	
<b>Total liabilities and stockholders' equity</b>	8.092.460	100%	5.830.667	100%	2.416.930	100%	1.114.190	100%

\* Total Equity = (stockholders' equity + convertible senior notes)

### INCOME STATEMENT (in thousands of \$)

**Year Ended December 31,**

	<b>2015</b>		<b>2014</b>		<b>2013</b>		<b>2012</b>	
<b>Revenues</b>								
<b>Automotive</b>	3.740.973	<b>92,46%</b>	3.007.012	<b>94,02%</b>	1.921.877	<b>95,45%</b>	385.699	<b>93,33%</b>
<b>Services and other</b>	305.052	<b>7,54%</b>	191.344	<b>5,98%</b>	91.619	<b>4,55%</b>	27.557	<b>6,67%</b>
<b>Total revenues (SALES)</b>	4.046.025	<b>100,00%</b>	3.198.356	<b>100,00%</b>	2.013.496	<b>100,00%</b>	413.256	<b>100,00%</b>
<b>Cost of revenues</b>								
<b>Automotive</b>	-2.823.302	<b>-69,78%</b>	-2.145.749	<b>-67,09%</b>	-1.483.321	<b>-73,67%</b>		
<b>Services and other</b>	-299.220	<b>-7,40%</b>	-170.936	<b>-5,34%</b>	-73.913	<b>-3,67%</b>		
<b>Total cost of revenues</b>	-3.122.522	<b>-77,18%</b>	-2.316.685	<b>-72,43%</b>	-1.557.234	<b>-77,34%</b>	-383.189	<b>-92,72%</b>
<b>Gross profit</b>	923.503	<b>22,82%</b>	881.671	<b>27,57%</b>	456.262	<b>22,66%</b>	30.067	<b>7,28%</b>
<b>Operating expenses</b>								
<b>Research and development</b>	-717.900	<b>-22,45%</b>	-464.700	<b>-14,53%</b>	-231.976	<b>-11,52%</b>	-273.978	<b>-66,30%</b>
<b>Selling, general and administrative</b>	-922.232	<b>-28,83%</b>	-603.660	<b>-18,87%</b>	-285.569	<b>-14,18%</b>	-150.372	<b>-36,39%</b>
<b>Total operating expenses</b>	-1.640.132	<b>-51,28%</b>	-1.068.360	<b>-33,40%</b>	-517.545	<b>-25,70%</b>	-424.35	<b>-102,68%</b>
<b>Loss from operations (EBIT)</b>	-716.629	<b>-22,41%</b>	-186.689	<b>-5,84%</b>	-61.283	<b>-3,04%</b>	-394.283	<b>-95,41%</b>
<b>Interest income</b>	1.508	<b>0,05%</b>	1.126	<b>0,04%</b>	189	<b>0,01%</b>	288	<b>0,07%</b>
<b>Interest expense</b>	-118.851	<b>-3,72%</b>	-100.886	<b>-3,15%</b>	-32.934	<b>-1,64%</b>	-254	<b>-0,06%</b>
<b>Other income (expense), net</b>	-41.652	<b>-1,30%</b>	1.813	<b>0,06%</b>	22.602	<b>1,12%</b>	-1.828	<b>-0,44%</b>
<b>Loss before income taxes (EBT)</b>	-875.624	<b>-27,38%</b>	-284.636	<b>-8,90%</b>	-71.426	<b>-3,55%</b>	-396.077	<b>-95,84%</b>
<b>Provision for income taxes</b>	13.039	<b>0,41%</b>	9.404	<b>0,29%</b>	2.588	<b>0,13%</b>	136	<b>0,03%</b>
<b>Net Profit (Loss)</b>	(888.663)	<b>-27,78%</b>	(294.040)	<b>-9,19%</b>	(74.014)	<b>-3,68%</b>	(396.213)	<b>-95,88%</b>

## CASH FLOW STATEMENT (in thousands of \$)

Year Ended December 31,

	2015	2014	2013
<b>Cash Flows from Operating Activities</b>			
Net loss	\$ (888.663)	\$ (294.040)	\$ (74.014)
<b>Adjustments to reconcile net loss to net cash provided by (used in) operating activities:</b>			
Depreciation and amortization	422.590	231.931	106.083
Stock-based compensation	197.999	156.496	80.737
Amortization of discount on convertible debt	72.063	69.734	9.143
Inventory write-downs	44.940	15.609	8.918
Amortization of Department of Energy (DOE) loan origination costs	-	-	5.558
Change in fair value of DOE warrant liability	-	-	(10.692)
Fixed asset disposal	37.723	14.178	1.796
Other non-cash operating activities	26.373	7.471	1.815
Foreign currency transaction (gain) loss	55.765	(1.891)	(13.498)
<b>Changes in operating assets and liabilities</b>			
Accounts receivable	46.267	(183.658)	(21.705)
Inventories and operating lease vehicles	(1,573.860)	(1,050.264)	(460.561)
Prepaid expenses and other current assets	(29.595)	(60.637)	(17.533)
Other assets	(24.362)	(4.493)	(434)
Accounts payable and accrued liabilities	263.345	414.856	87.413
Deferred revenue	322.203	209.681	268.098
Customer deposits	36.721	106.230	24.354
Resale value guarantee	442.295	249.492	236.299
Other long-term liabilities	23.697	61.968	33.027
<b>Net cash provided by (used in) operating activities</b>	<b>(524.499)</b>	<b>(57.337)</b>	<b>264.804</b>
<b>Cash Flows From Investing Activities</b>			
Purchases of property and equipment excluding capital leases	(1,634.850)	(969.885)	(264.224)
Withdrawals out of our dedicated DOE account, net	-	-	14.752
(Increase) decrease in other restricted cash	(26.441)	(3.849)	55
Purchases of short-term marketable securities	-	(205.841)	-
Maturities of short-term marketable securities	-	189.131	-
Business acquisition	(12.260)	-	-
<b>Net cash used in investing activities</b>	<b>(1,673.551)</b>	<b>(990.444)</b>	<b>(249.417)</b>
<b>Cash Flows From Financing Activities</b>			
Proceeds from issuance of convertible and other debt	318.972	2,300.000	660.000
Proceeds from issuance of common stock in public offering	730.000	-	360.000
Proceeds from issuance of warrants	-	389.160	120.318
Proceeds from exercise of stock options and other stock issuances	106.611	100.455	95.307
Proceeds from issuance of common stock in private placement	20.000	-	55.000
Principal payments on DOE loans	-	-	(452.337)
Purchase of convertible note hedges	-	(603.428)	(177.540)
Common stock and convertible debt issuance costs	(17.025)	(35.149)	(16.901)
Principal payments on capital leases and other debt	(203.780)	(11.179)	(8.425)
Collateralized lease borrowing	568.745	3.271	-
<b>Net cash provided by financing activities</b>	<b>1,523.523</b>	<b>2,143.130</b>	<b>635.422</b>
Effect of exchange rate changes on cash and cash equivalents	(34.278)	(35.525)	(6.810)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(708.805)</b>	<b>1,059.824</b>	<b>643.999</b>
Cash and cash equivalents at beginning of period	1,905.713	845.889	201.890
Cash and cash equivalents at end of period	1,196.908	1,905.713	845.889