



Situation Analysis and Marketing Plan

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Industry Analysis

Market Overview: Solar Panels

Solar power can be defined as the conversion of energy from sunlight into electricity. Either using photovoltaics directly or by using the power indirectly with concentrated solar power. Photovoltaic cells convert light into an electric current, while concentrated solar power uses mirrors to focus a large amount of sunlight into a small beam of electricity. Solar power technologies began being developed in 1860's where Charles Frittis installed the solar rooftop with photovoltaic cells using 1% selenium cells. The expansion began to take a nose dive in the 20th century and began to pick up 1980s installation of PV grew rapidly due to the declining in the price it took to install the panels. The mid 1990's saw the first of residential installations due to the supply issues of oil and natural gas and global warming concerns.

The solar panel industry is in the early growth stage. The cost to install solar panels have fallen by 70% since 2010.¹ These falling prices are spurring demand and production capacity is increasing, making solar panels more available. Solar's percent of generation capacity in the US has grown from 0.1% to 2% since 2010.² Concern about the environmental costs of energy generation using fossil fuels is also driving demand.

¹ <https://www.seia.org/solar-industry-research-data>

² <https://www.seia.org/solar-industry-research-data>

Five Forces:

Competitive Intensity

Competitive intensity in the solar panel industry is currently moderate. There are a few big firms in this space³, with strong growth rates. Because the industry is largely undifferentiated, companies are struggling to differentiate themselves, resulting in high innovation pressures. This requires bigger investments in research and development, as smaller, sleeker, and more efficient models are demanded by customers.

Threat of New Entrants

The threat of new entrants into the solar panel industry is low. This is due to the large capital investments required to manufacture solar panels as well as costs associated with ongoing innovation. The industry also requires a large technical knowledge base that must grow to keep pace with a rapidly advancing product group.

Power of Buyers

Power of buyers is medium. Though the product is largely undifferentiated and there is no brand loyalty since most buyers will only purchase once, the market consists of many small buyers, and switching costs are high due to the fact that many homeowners lease the panels and there are costs associated with ending the contract prior to the expiration of the term of the lease.

Power of Suppliers

The power of suppliers in the solar panel industry is low. This is due to the fact that the product supplied, photovoltaic cells, is an undifferentiated product, and that there are many potential suppliers of this product.

³ <https://news.energysage.com/u-s-solar-panel-manufacturers-list-american-made-solar-panels/>

Threat of Substitutes

There are many substitutes for solar power, including wind, hydro, and fossil fuels. Several of these are still cheaper than solar power, making them a significant threat. Threat of substitutes is high.

Complements

Products that are complements to solar power are ones that allow solar users to access power regardless of the time of day or the weather. These include battery storage systems and in some cases other power generation methods, notably wind power.

The most important of these forces in the current market is the threat of substitutes. Industry growth will be hindered by this force until solar becomes less expensive than the alternatives. At this point, the solar power industry is moderately attractive, with several forces making it more attractive and others making it less attractive.

Competitive Review

Brand competitors

- **Sunrun Inc** - A U.S. solar panel company co-founded in 2007 by Ed Fenster, and Nat Kremer that offers customers either a lease or a Power Purchase Agreement (PPA) where homeowners pay for electricity usage but do not buy the solar panels outright. Sunrun is responsible for installation, maintenance, monitoring, and repairs. Sunrun has over 200,000 customers. Customers can monitor their system on the internet.
- **Vivint Solar** - U.S. based solar panel company that has over 100,000 customers in 21 states. Vivint installs solar panels at no cost to their customers, usually with a PPA-type plan. Like Sunrun, they now offer \$0 down plans, PPAs, and full ownership models, as well as a solar loan program
- **SunPower** - 30-year-old company solar panel manufacturer based in the U.S. SunPower partners with local installers around the country, allowing them to use their products as a representative of the SunPower brand. SunPower also works on community solar projects. SunPower claims that its solar panels produce 55 percent more energy than competitors.
- **Sunnova** - Founded in 2012 by a team of entrepreneurs. All of Sunnova's solar options are \$0 down, with options to eventually own the system or to lease it for a defined period of time. Sunnova covers all maintenance and repairs to the system for the lifetime of the solar service agreement. has no in-house installation or maintenance teams. Instead, they have regional partners across the country to do installation and maintenance jobs for them.
- **RGS Energy** - Founded in 1978 with the goal of reducing homeowners and businesses electricity cost. RGS has done over 18,000 installations and operates in

10 states. Claims to be one of the first to sell solar panels. Firm offers both solar loans and purchases.

Product Competitors

- [Axitec Solar](#) AXIplus BLK SE
- [Boviet Solar USA](#) 1500V Polycrystalline Solar Module
- [CertainTeed](#) Apollo II Solar System
- [ecoSolargy](#) Zeus 1000 Plus
- [Lumeta](#) LPP-175
- [MiaSolé](#) FLEX module
- [Mission Solar Energy](#) MSE-295 PERC 60
- [Hanwha Q CELLS](#) Q.PEAK-G4.1
- [Silfab](#) SLA-M 60-cell monocrystalline module
- [Solaria](#) PowerXT
- [SolarTech Universal](#) Quantum Series Solar Panels
- [SolarWorld](#) Sunmodule Bisun Bifacial Module
- [Trina Solar](#) Tallmax M Plus

Generic Competitors

Instead of buying solar panel roofing from Solar City, people can buy normal roofing and receive electricity from power plants.

Total Budget Competitors

The cost of Solar City's roofs for a home needing 3,000 square feet of roofing would cost more than \$65,000 if 35% of the tiles were solar. Instead of buying solar panel roofs from Solar City, people could spend \$65,000 on a new car, or a small home.

Top Three Significant Competitors:

SunPower Corporation

Vivint

Sunrun

Competitors Current/ Past Strategies

SunPower Corporation

Unlike many solar panel companies, SunPower builds its own technology as well as sells it. SunPower used to focus on leases but is now focusing on a model of selling the solar panels. SunPower focuses on Technology differentiation. SunPower produces expensive but high-quality solar panels. SunPower's go-to-market strategies have been successful enough to keep it among the world's top ten manufacturers. SunPower's model is "closer to a DirecTV model or like air conditioning companies: Train local dealers owned by other individuals," says Regions President Howard Wenger. SunPower focuses on its vertical integration and its ability to secure financing. SunPower wants to grow the power plant business and add energy storage to more residential and commercial installations. Sunpower is transitioning its business from developing and building power plants to supplying other developers with the components they need to build solar power plants, large and small.⁴

Vivint Solar

Vivint is changing from a focus on solar leases to an increasing percentage of solar system sales. Recently launched its first ever "Fully Integrated Solar" solution. Vivint now has smart meter and thermostat makers, so Vivint's rooftop solar projects can now be sold alongside EV chargers from ChargePoint and home batteries, for which Vivint is partnered with Mercedes-Benz Energy. CEO David Bywater claimed this made Vivint the first residential solar

⁴ <https://www.fool.com/investing/2017/05/11/sunpower-corporation-lays-out-growth-plans-after-t.aspx>

“one stop shop” for customers. Vivint promotes the savings associated with buying their solar panels. Vivint also offers multiple payment methods, including purchase, loan, PPA, or lease.

Sunrun Inc.

Sunrun’s strategy emphasizes cost savings and simplicity in their solar panels. Sunrun wants to be a solar panel provide for the average homeowner. Although pricey at first, they emphasize the energy cost savings over time. Sunrun also boasts their experience in solar panel installation compared to its competitors. Sunrun offers different ways to pay, and offers full refunds.

Competitor Financials

SunPower Financials⁵

Revenue: \$2.1 billion

Estimated market share: 2.0%

Estimated market share growth: 0%

Net income: (\$851.2 million)

Vivint Solar Financials⁶

Sales revenue: 268.03M

Market share: <1%

⁵ Mergentonline.com

⁶ <https://www.nasdaq.com/symbol/vslr/earnings-growth>

Estimated market growth: Analysts expect earnings growth next year of 24.52%

Net income: 209,098,000

Sunrun Inc Financials⁷

Sales Revenue: 603m

Estimated market growth: Forecasted 32.05% growth in sales revenue

Market share: <1%

Net Income 122m

Competitors Primary Strengths and Weaknesses

SunPower Strengths⁸

- Highly skilled workforce through successful training and learning programs.
- Research and Development Activities - SunPower is engaged in research and development (R&D) to improve existing products, develop new techniques, and reduce production cost and complexity. The R&D group works closely with the manufacturing facilities, equipment suppliers, and customers to improve the solar cell design and efficiency, and lower solar cell, solar panel, and system product manufacturing and assembly costs. During FY2017, the company's R&D expenses totaled US\$80.8 million.
- Reliable suppliers – It has a strong base of reliable supplier of raw material thus enabling the company to overcome any supply chain bottlenecks.

⁷ Mergentonline

⁸ <http://fernfortuniversity.com/term-papers/swot/nyse/3934-sunpower-corporation.php>

- The company's customer base is diversified. SunPower's customers include investors, financial institutions, project developers, electric utilities, independent power producers, commercial and governmental entities, production home builders, residential owners, and small commercial building owners
- SunPower is a vertically integrated solar products and services company. In the solar power systems product category, the company offers several types of rooftop- and ground-mounted solar systems such as residential systems, commercial roof and ground mounted systems, and utility and power plant systems.

SunPower Weaknesses⁹

- SunPower relies on third-party suppliers, including its joint ventures, for certain raw materials and components for its solar cells, panels, and power systems such as polysilicon, inverters, and third-party solar panels.
- SunPower currently has a significant amount of debt and debt service requirements. As of December 31, 2017, the company had approximately USD1.6 billion of outstanding debt for borrowed money. This level of debt could have material consequences on future operations. The company's ability to meet its payment and other obligations under its debt instruments depend on the ability to generate significant cash flows, which, to some extent, is subject to general economic, financial, competitive, legislative and regulatory factors as well as other factors that are beyond the control.
- Most of SunPower's EPC contracts are fixed-price contracts. All essential costs are estimated at the time of entering into the EPC contract and are reflected in the price charged to the customers. The cost estimates may or may not be covered by contracts between the company and any other parties required to complete the project. Thus, if the cost of materials were to rise dramatically, or if financing costs were to increase, these costs may have to be borne by the company.

⁹ <http://fernfortuniversity.com/term-papers/swot/nyse/3934-sunpower-corporation.php>

Vivint Solar Strengths¹⁰

- Strengths include reduced labor costs, experienced business units, high revenues and profitability, and the present distribution and sales network.
- Vivant has an efficient distribution and sales network that allows customers to pay for the energy that is generated rather than the solar panels.
- Strong brand- Regarded as the green home technology company, its commands a strong brand awareness in the 20 U.S. states that it operates.
- Vivint is Highly successful at Go-To-Market strategies for its products.
- Vivint Solar, Inc. has built expertise at entering new markets and being successful in them.

Vivint Solar Weaknesses¹¹

- The firm relies on the selling and marketing channels that can only attract a small number of consumers to get a large portion of revenue.
- Vivint's positioning and unique selling proposition aren't clearly defined, which can lead to the firm being overcome in this segment from the competitors.
- Monetary resources are a problem for efficient operation. Financial planning is not done efficiently.
- The current asset ratio and liquid asset ratios suggest that the company can use the cash more efficiently than currently.

¹⁰ <http://fernfortuniversity.com/term-papers/swot/nyse/4036-vivint-solar--inc-.php>

¹¹ <http://fernfortuniversity.com/term-papers/swot/nyse/4036-vivint-solar--inc-.php>

Sunrun Inc. Strengths¹²

- Sunrun has good Returns on Capital Expenditure, which means the company is successful in the execution of new projects and uses money effectively.
- Strong distributor relationships. Dealers help promote products and train sales team.
- Sunrun has a strong base of reliable suppliers of raw material.
- The automation of activities has improved the consistency of quality to Sunrun Inc. products and has enabled the company to match market demand conditions.
- Sunrun has a successful track record of integrating complementary firms through mergers & acquisitions. It has successfully integrated the number of technology companies in the past few years to streamline its operations and to build a reliable supply chain.
- Strong distribution network – Over the years Sunrun Inc. has built a reliable distribution network that can reach a majority of its potential market.

Sunrun Inc Weaknesses¹³

- Sunrun is lacking investment in R&D for new technologies. Currently, the investment in technologies is not at par with the vision of the company.
- Limited success outside core business – Even though Sunrun Inc. is one of the leading organizations in its industry it has faced challenges in moving to other product segments with its present culture.
- Not highly successful at integrating firms with different work culture. As mentioned earlier even though Sunrun Inc. is successful at integrating small companies it has its share of failure to merge firms that have different work culture.

¹² <http://fernfortuniversity.com/term-papers/swot/nyse/3879-sunrun-inc-.php>

¹³ <http://fernfortuniversity.com/term-papers/swot/nyse/3879-sunrun-inc-.php>

- Not very good at product demand forecasting leading to higher rate of missed opportunities compare to its competitors.
- The profitability ratio and Net Contribution % of Sunrun Inc. are below the industry average.
- The amount of time inventory is held is high compared to competitors – forcing the company to raise more capital to invest in the channel. This can impact the long-term growth of Sunrun Inc.
- The marketing of the products left a lot to be desired. Even though the product is a success in terms of sale, its positioning and unique selling proposition are not clearly defined, which can lead to the attacks in this segment from the competitors.

Future marketing strategies

Sunrun Inc.

Sunrun Inc. plans to move into a new market- energy storage and grid services, which means it will become a more prominent competitor for Solar City.¹⁴ Storage will likely become a major part of the business and a key success factor in the industry with the ability to deliver electricity during power outages. Sunrun plans to lock down more contracts for grid services throughout the U.S., which will generate a lot of revenue in the future.

Vivint Solar

Vivint Solar will likely move its marketing from door-to-door to digital. This will lower costs and delight customers, who don't need to see another door-to-door solar salesperson. SolarCity also only does door-to-door marketing, so the first one to move to a digital marketing landscape will have an advantage. Vivint Solar has recently partnered with Vivint smart homes, meaning they'll likely focus on innovation for technology in homes that allows for a fully integrated system. This is very impactful for SolarCity since SolarCity is basically working towards the same goal.

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<https://www.greentechmedia.com/articles/read/sunrun-keeps-growing-while-prepping-for-a-whole-new-business#gs.U53DwrM>

SunPower

Sunpower inc is transitioning its business from developing and building power plants to supplying other developers with the components they need to build solar power plants, large and small. Sunpower recently invested in the new P-Series solar panel. P-Series has two significant advantages that SunPower is hoping to leverage to grow in the future. First, it uses low-cost, commodity solar cells. Second, it has a low cost of \$0.05 per watt of capacity with about a 6-month lead time to build capacity. This means it can produce a large capacity in a short amount of time for a low cost. SunPower is working on next-generation, high-efficiency products, which will eventually upgrade or replace the X-Series panels that are the industry's most efficient. This could have a strong impact on Solar City, because if SunPower can build more efficient solar panels at a lower cost, they'll have a huge competitive advantage.

Type of Competitive market

SolarCity, SunPower, Vivint Solar, and Sunrun Inc all compete in a competitive oligarchy as there are a few major solar panel companies each having a proportion of the market share and marginally differentiated products.

Customer Review:

Who the existing and potential buyers are:

Existing customer's in the market ranges from customers interested in new and emerging technologies since Tesla's solar roofing is a newer technology for homeowner are more likely to purchase them. Homeowner's that care conscious about the environment and want to lower their carbon footprint have also sought the product. The aesthetics about the solar panels roof are incredible they look like "regular roofing panels" causing customer's that take pride in their homes and have the capital for the investment, will buy this product. Status valuing customers are buying this product because it's easily able to show off the have status because whenever a friend or relative comes to visit the customer can show off how expensive it was to install the solar panel roof.

Market's that are untapped and that the Tesla solar panels can try to reach is the industrial markets. Such as large corporations like Walmart, Target, and Apple. Larger companies want to be able to reduce their carbon footprint. Also want to create a positive image to customers that they care about the environment and not just about making profits will likely consider purchasing and installing the Tesla solar panels on their stores because it's a great source of renewable energy and will help lower their electricity costs over the long run which will include their profits.

Provide demographic, psychographic, geographic, socioeconomic, and behavioral characteristics

Demographics/Socioeconomic: Income range: \$60,000 or above which falls into the range of middle class to high class. The targeted age will be homeowners ages between 25-34 because during this age they will be looking to purchase homes and have enough capital to afford the solar panel roof. Both male and female potential customers can be apart of the demographic. Most of these installation will occur in urban and townhomes across the U.S.

Geographic: Looking at which states have the most solar capacity and have enough supply to use the solar panels¹⁵

1. Georgia
2. Utah
3. Florida
4. Massachusetts
5. New Jersey
6. Texas
7. Nevada
8. Arizona
9. North Carolina
10. California

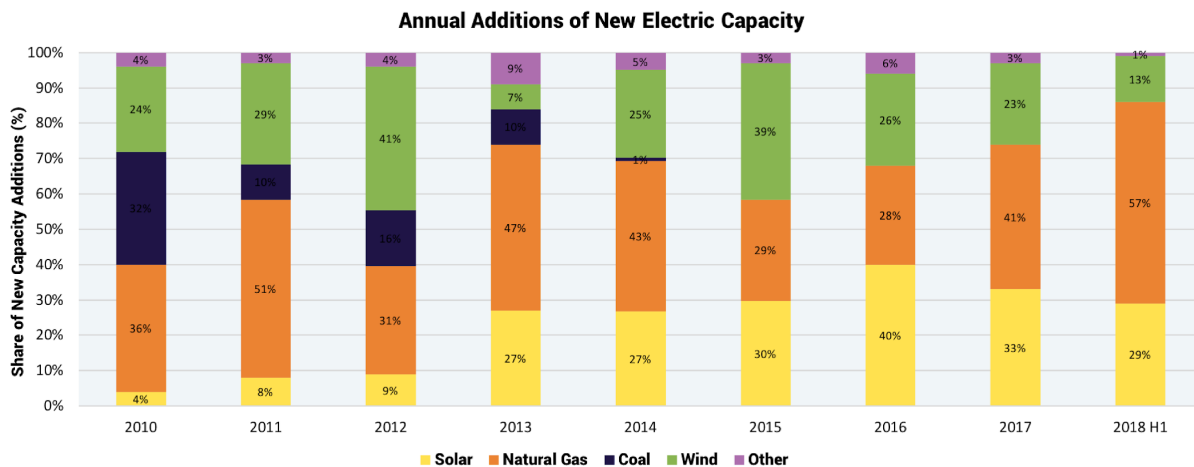
Psychographic: Tesla can separate and target certain segmentation. The first one could be the consumer that cares for the environment wants to be a solution for renewable energy. The next type of customer would be our status customer. Lastly it would be segmented towards companies that wanted to reduce their carbon footprints.

¹⁵ <https://www.cnbc.com/2018/09/19/the-us-states-leading-the-way-in-solar.html>

The size of the existing and potential market

The U.S market size is expected to reach 22.90 billion dollars by 2025.¹⁶ Currently the market for solar panels are in sunshine states which include California, Florida, Texas, and Utah are states that currently drive the market. Expansion into more states could increase buyer potential. Since there is an Investment tax credit of 30% that gets subtracted from the total cost of installation this might lead to more homeowners to install the solar panels.

Solar energy compared to other relative energy source such as natural gas, coal, and wind is increasing every year as one can tell from the graph¹⁷ below:



Source: SEIA/Wood Mackenzie Power & Renewables, U.S. Solar Market Insight; Lawrence Berkeley National Laboratory, Tracking the Sun



The purchase decision process.

The first part of the purchasing a product is acquiring all the information needed in order to make a great decision. Homeowner's can analyze if their current roof needs to be replaced due to the old age, if it does need to be replaced then they can move to the next step and consider the average installation of a normal roof the average cost would be around \$8,000 dollars and

¹⁶

<https://www.prnewswire.com/news-releases/u-s-solar-panel-market-size-worth-usd-22-90-billion-by-2025-hexa-research-893746041.html>

¹⁷ <https://www.seia.org/solar-industry-research-data>

they will have to pay for their electricity bill every month which averages per household to be \$150/month.¹⁸

Or they could consider installing a solar panel roof not from Tesla which would cost about \$34,030.¹⁹ Installing a Tesla solar roof will cost \$50,900. Consumer's will need to make a decision on which route they would like to take from here.

A great factor about Tesla's solar roofs that could influence the decision process instead of having to replace the entire roof customers can choose to replace 35-50% of the roofing tiles to the solar ones and that number should cover the electricity costs for most homeowners.

This is the perfect time to install the solar panel roof because of the 30% tax credit that comes along with it. After 2019 the tax credit drops to 26%. In 2021 the tax credit will be abolished.²⁰

After informing the consumers about all the possible advantages and disadvantages of purchasing the solar panels tiles. It's time for the consumer to to make their own educated decisions.

Why the customers buy:

Several advantages of purchasing the solar pannel tites first off the initial investment of \$50,900 will be distributed over the 30-year long mortgage plans that Tesla offers to pay for them so that the homeowner will not to pay the entire cost upfront. Due to the design of the panels, Tesla claims that they are basically indestructible and Tesla offers a lifetime warranty on the titles as long as your name is on the title of the home. Lastly is the aesthetics of the titles itself pleasing to look at since they look like normal titles installation is easy since there is not visible wires and pop out. All the energy collected goes into a battery box which can then be used.

What the customers expect is included in the purchase:

When purchasing the Tesla solar panels the customers is expected to receive invisible solar cells, infinite warranty, and off-grid reliability.

¹⁸ <https://news.energysage.com/how-much-does-the-average-solar-panel-installation-cost-in-the-u-s/>

¹⁹ <https://news.energysage.com/tesla-solar-roof-price-vs-solar-panels/>

²⁰ <https://www.solar-estimate.org/news/2018-06-03-are-the-tesla-solar-roof-tiles-worth-it>

Customer's will also be receiving the Powerwall battery which is where all of the energy is stored and then can be used around the house.

Macroenvironment Review:

Legal/Regulatory: While there aren't too many laws and regulations surrounding the solar power industry, recent years have shown that this will most likely change. In 1935, before renewable energy, the Federal Power Act was the first law regarding electricity transactions which gave the Federal Power Commission (FPC) federal oversight of the power sector. It's only in recent years that new laws have been written in order to better regulate the solar power industry. For example, the Energy Policy Act of 2005 was a fairly important law that provided tax incentives for transmission system improvements. This in effect gave solar power a more powerful market presence by forcing out uneconomical projects.²¹

Since federal oversight of electricity transactions was given to the FPC, certain laws differ state-to-state. In Nevada, net metering allowed people to sell excess electricity to their utility company. This allowed for people with solar power to save even more money on their electric usage – but utility companies found this unfair, as these people also didn't have to pay to “maintain the grid.” In 2015, net metering in the state was revoked, which led to a 32% decline in solar jobs in 2016 alone.²² The flaws to this compromise were soon realized, and in 2017 a new bill reintroduced net metering in the state. While this only happened in one state, it gave the rest of the country a good look into what not to do.

²¹ <https://www.nrel.gov/docs/fy16osti/66724.pdf>

²² <https://www.solarpowerworldonline.com/2018/01/new-notable-solar-laws-united-states-abroad/>

More recently, there's also been a slight country-wide step back – in January, a tariff was placed on imported solar cells and modules for the next four years. Due to low margins within the power industry, this 30% tariff with a yearly decline of 5% will most likely cause a decrease in solar equipment purchases due to favorable alternatives.²³

Economic: The solar power industry is currently booming in the US. The economy has seen an upward curve of industry employment over the past 7+ years (see graphic).

The overall market has a large dependency on low-pricing. This is due to competition between other market segments, such as wind and natural gas. At times when solar power's overall industry pricing is high, the market tends to stray towards those cheaper alternatives and vice versa. The cost to install solar has dropped by more than 70% since 2010, showing that at this rate, the industry has a large chance to thrive in the coming future. On top of this, solar power has increased its share of total U.S. electrical generation from 0.1% in 2010 to what is now over 2%.²⁴

There are certain states in which solar power is thriving and many others with plenty of room for growth. As seen in the chart below, California is light years ahead of every other state in terms of solar power capacity – it wouldn't be off-base to assume that SolarCity having headquarters in California might have a positive influence on this.

²³ <https://www.seia.org/research-resources/section-201-solar-tariffs>

²⁴ <https://www.seia.org/solar-industry-research-data>

Firm Analysis



Mission: "Producing your own clean energy" and "Sustainable energy for the future"

Location: San Mateo, California

History: SolarCity was founded in 2006 by two brothers with the names of Peter and Lyndon drive. The company focused on solar energy installation for residential homes and industrial companies as well. In 2014 the company offered bonds that could be bought by the public. SpaceX was the biggest purchaser they purchased 90 million dollars worth of bonds from the company. Elon Musk which was cousins with Peter and Lyndon decided to purchase SolarCity in 2016 and turn it into a Tesla subsidiary. Elon Musk's vision was to create a sustainable renewable energy both from transportation to residential homes.

Key Management: Elon Musk controls SolarCity, he himself owns 22% of the companies key stocks. His vision for the merger to combine Tesla and SolarCity into an economy that one day will be solely electric based. Peter and Lyndon left the company shortly after it was acquired.

Number of Employees: In 2016 SolarCity had grown to 15,273 employees. Once the company was bought by Tesla approximately 22% of jobs were cut stemming from operations, manufacturing, and marketing jobs.

Key Management: Elon Musk

Primary Products Offered

Solar Panels:



SolarCity offers unique solar panels that can be installed onto residential homes and industrial place as well. Single solar panels can be installed onto each roofing tile and a customer does not need to replace the entire roof with solar panels.

Electric vehicle chargers:



SolarCity partnered with Tesla to provide free electric car charging stations of Tesla customer's in California ranging from San Francisco to Los Angeles.

Powerwall (energy storage unit):



This product acts as a complement to the solar panels that are installed. When the energy is captured from the solar panels, it gets transformed into these energy units to be used when the customer needs electricity.²⁵

Services:

Solar Leasing: Instead of having the customer pay for the entire installation and purchase of the solar roofing units. SolarCity offers the service of a long-term financing plan in which the lump amount can be tied into the homeowner's mortgage. This entices more potential customers to purchase the product because financing a product long-term can be pleasing to a larger customer base.²⁶

Installation of residential and industrial solar panels: Once the product is purchased, SolarCity sends a crew into your business or home and installs the panels onto your house. The panels

²⁵ https://www.tesla.com/about?energy_redirect=true

²⁶ <https://www.tesla.com/solarpanels>

are put on using this “snap-in technology” which helps shorten time spent on installing the product and more time to use the product.

Current Goals and Objectives

According to Tesla’s Master Plan Part Deux, their overall goal for their solar business is to “create a smoothly integrated and beautiful solar-roof-with-battery product that just works, empowering the individual as their own utility, and then scale that throughout the world.”²⁷ Solar City was primarily an installer when it was purchased by Tesla, and the company is working steadily on integrating its own products into the business, including exclusive solar panels by Panasonic as well as the solar roof and energy storage solutions, the Powerpack for commercial and industrial customers, and the Powerwall for residential customers.²⁸ To this end, Solar City was merged with Tesla, in order to eliminate barriers to integrating manufacturing and marketing capacity across Tesla and SolarCity.

The company met its previous goal of deploying 1 GW/H of energy storage over five years and according to their 2018 Q2 investors letter, plans to deploy another GW/h of storage within the next 9-12 months.²⁹ This will involve a three-fold increase in deployments in 2018 as compared to 2017.

Tesla plans to maintain a neutral cash flow from the solar business as they ramp up production of photovoltaic cells at Gigafactory 2 and gather feedback from existing solar customers. The overall goal is to ramp up their manufacturing capacity and reduce costs before pursuing greater market share.

²⁷ <https://www.tesla.com/blog/Master-plan-part-deux>

²⁸ <https://electrek.co/2017/12/18/tesla-solar-strategy-shift-market-fall-installations/>

²⁹ <http://ir.tesla.com/press-releases>

Current Strategy

Since Solar City was originally an installer, their strategy was to add new customers. Since the company was acquired by Tesla, they have slowed new installations in order to focus on increasing the profit margin from the product. While production increases at the new Gigafactory, they're marketing the product to existing customers only, through the Tesla app and through existing Tesla dealerships. Tesla currently has 80 dealerships in the U.S. that offer their energy products, and they plan to expand that outside of the U.S. in the third quarter.³⁰

Tesla is currently ramping up production at Gigafactory 2, as well as working on reducing manufacturing costs and improving the quality of their energy products.³¹

The company is using early installations, including those for Tesla employees, to gather information regarding the performance of their energy products. This will provide guidelines to ensure that the products meet Tesla's high-quality standards.

Tesla Solar is currently marketing solar products to existing customers through the Tesla car dealerships, the Tesla website, and the Tesla app in order to create a loyal base. Once production capacity ramps up, Tesla plans to expand installations.

Current Lifecycle Stage

³⁰ <http://ir.tesla.com/static-files/7235e525-db16-470c-8dce-9ecac0ad7712>

³¹ <https://electrek.co/2017/12/18/tesla-solar-strategy-shift-market-fall-installations/>

Currently, SolarCity's solar panels are still just beginning to climb the growth stage of the product lifecycle. According to a research report done by Hexa Research,³² the U.S. solar panel market size is expected to reach USD 22.90 billion by 2025. For an idea of how much growth that implies, last year in 2017, the market size was roughly USD 12.67 billion. Overall, solar panels have been slowly but surely been gaining traction ever since the discovery of its increasing practicality as a reliable source of energy. A multitude of market research suggests that a market spike is bound to happen in the near future. With SolarCity standing at the top of the solar energy industry and backed by the capabilities of Tesla, a bump in market growth would most likely cause SolarCity to bask in profits.

Current Branding Strategy

The branding strategy for SolarCity isn't too powerful compared to other aspects of the Tesla corporation. When SolarCity was originally purchased by Tesla in 2016, marketing costs were the first to be cut, with Tesla virtually flipping its business model. This was due to the fact that smaller upstarts were using cheaper sales tactics, while SolarCity was spending more than they were taking in.³³ In the words of a 2016 quarterly update by Tesla: "With our acquisition of SolarCity complete, we plan to reduce customer acquisition costs by cutting advertising spending, selling solar products in Tesla stores, and shifting from leasing to selling solar energy systems."³⁴

With a significant decrease in market spending, branding for SolarCity was lacking. As CEO of Tesla, Elon Musk is an odd character when it comes to marketing, as he relies heavily on word of mouth for most of Tesla's advertising. As of 2018, SolarCity is pretty much in the same boat as it was in late 2016, after being bought out. Its current strategies almost solely consist of internet advertisements, due to necessary financial conservation – just in June, SolarCity decided to pull the plug on advertising in one of their biggest sellers, Home Depot.

³² <https://www.hexaresearch.com/research-report/us-solar-panel-market>

³³ <https://www.marketwatch.com/story/solarcity-to-cut-marketing-costs-to-compete-better-2016-09-22>

³⁴

http://files.shareholder.com/downloads/ABEA-4CW8X0/5781640346x0x929284/22C29259-6C19-41AC-9CAB-899D148F323D/TSLA_Update_Letter_2016_4Q.pdf

Musk said this was intended to "focus (their) efforts on selling solar power in Tesla stores and online."³⁵ Overall, SolarCity's branding strategy is nearing non-existence.

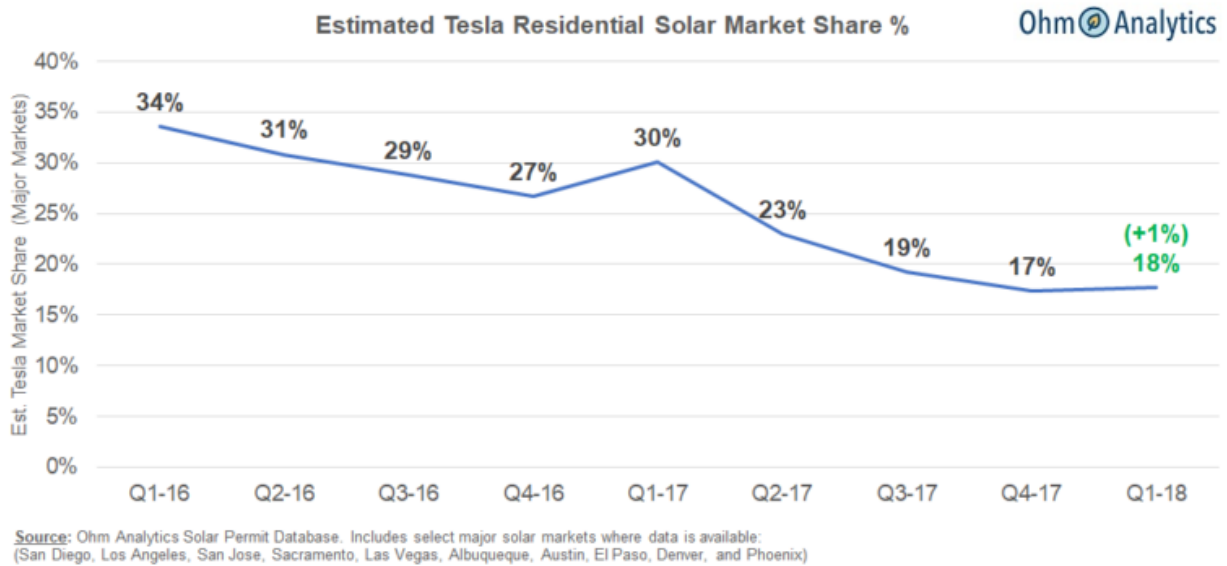
Current performance in terms of sales, market share, market share growth, and profitability

Revenue: \$730,342,000 (2016)

Profitability: \$238,774,000 (2016)

Residential Solar Market Share: 18% (Q1, 2018)³⁶

Residential Solar Market Share Growth:



2016 - 27% Market share

2017 - 17% Market share (10% decrease)

2018 Q1 - 18% (1% increase)

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">The increasing demand for solar energy creates numerous cheap sources of capital³⁷	<ul style="list-style-type: none">High Debt/Equity ratioWeak cash flowSolar panels are only popular in sunny areas

³⁶ <https://www.ohmhomenow.com/teslas-solar-business-decline-bottomed-q1-18-market-share-1/>

³⁷ <https://www.iea.org/publications/renewables2017/>

<ul style="list-style-type: none"> ● SolarCity covers everything from sales, financing, engineering, installation, and monitoring, making it very easy for new customers to switch to SolarCity. ● Minimal investment for customers ● Tax credits and rebates for customers ● Owned by Tesla 	<ul style="list-style-type: none"> ● Only sells in the U.S. ● Increasing capital expenses ● History of missing revenue and production dates³⁸
<p>Opportunities</p> <ul style="list-style-type: none"> ● Electricity consumption to continue rising³⁹ ● Increasing demand for renewable energy⁴⁰ ● Increasing costs for traditional energy⁴¹ ● International governments are backing renewable energy ● New Gigafactory 2 plant in Buffalo, New York 	<p>Threats</p> <ul style="list-style-type: none"> ● Increased competition ● Tesla's production line failure has hurt cash flow and raises skepticism ● New tax law with lower corporate taxes could be a disincentive for investors ● New strategy of selling panels has led to a slowdown in installations⁴² ● Inability to deliver promised investment returns could hurt reputation and trust among investors.

³⁸ <https://www.forbes.com/sites/chuckjones/2016/04/05/tesla-over-promises-and-under-delivers-again/#58006167a361>

³⁹ <https://www.forbes.com/sites/judeclemente/2018/08/26/why-u-s-electricity-demand-will-increase/#367876a26dfb>

⁴⁰ <https://www.iea.org/publications/renewables2017/>

⁴¹ <https://www.instituteforenergyresearch.org/uncategorized/the-escalating-cost-of-electricity/>

⁴² <https://www.wsj.com/articles/tesla-feels-the-weight-of-solar-panels-1525199444>

Strengths

One strength for SolarCity is they have access to cheap capital. Investors are optimistic since the outlook for solar power is higher than both wind and hydro. The increasing demand for solar energy creates numerous cheap sources of capital.

Another strength SolarCity is that it is owned by Tesla, which is working to be the world's first vertically-integrated sustainable energy company. Vertical integration will help Tesla lower their costs and pass savings onto customers. Also, this provides customers with low switching costs. Since SolarCity covers everything from sales, financing, engineering, installation, and monitoring for customers, SolarCity is a one-stop shop for customers. Another strength of being owned by Tesla is the high investment in innovation and development of new technologies by the company.

Solar panels from SolarCity is a good investment for customers. SolarCity sells energy to customers at prices below utility rate, so customers will save money in the long-run. Furthermore, customers will earn tax credits and rebates from using renewable energy.

Weaknesses

SolarCity was acquired by Tesla. Tesla has a high Debt/Equity ratio, meaning that it is a risky business and has been aggressive in financing its growth with debt. SolarCity relies heavily on borrowing money to finance its no-money-down residential solar installations. Combined with a weak cash flow, SolarCity could be in a lot of trouble if it can't sustain itself from revenue. Tesla has a history of missing revenue and production dates which makes it an unattractive business for investors.

Solar panels are only popular in sunny areas. Since the solar panels require sunlight, growth is limited in the U.S. and the company will have to seek other markets around the globe which will cost a lot in investment.

Opportunities

Electricity consumption will continue to rise, providing SolarCity an opportunity for growth. As the demand for electricity increases, so too will the costs of traditional energy, and the savings for customers who switch to solar energy will further be noticed. Also, the demand for renewable energy as consumers and businesses are becoming more environmentally friendly. Renewable energy is also being backed by international governments as they try to lower greenhouse gas emissions to meet goals. The recently acquired Gigafactory 2 plant in Buffalo, New York will help SolarCity increase production and keep up with demand.

Threats

As the consumption of electricity and the demand of renewable energy increases, more and more solar ventures are being created increasing the competition in the industry.

Other threats involve the disincentives to invest in the company and solar energy in general. Tesla's production line failure has hurt cash flow and raised skepticism. This combined with its inability to deliver promised investment returns could hurt reputation and trust among investors and could present problems if more financing is needed in the future. Also, the new tax law with lower corporate taxes could be a disincentive for investors to fund renewable-energy projects and increase the cost of financing.

Core Competencies and Advantages

Competencies

SolarCity is owned by Tesla. Tesla's experience in design, engineering, and manufacturing should help continue the development of solar panel technology. On the other hand, SolarCity has a core competency in the sales, distribution, and installation of solar panels. The combination will bring about benefits to customers and shareholders. With Tesla, SolarCity now has a network of brick-and-mortar showrooms as a sales channel. Furthermore, SolarCity provides everything from finance to design, permits and installation, whereas SunRun doesn't serve the customer directly.

SolarCity is currently producing the Powerwall 2 which would store all of the energy captured for the solar panels. This power is beneficial during night times, or during power outages. The power can also be sold to make extra profit for the customer.

SolarCity and Tesla will go hand in hand in by vertically integrating to capture the solar energy and transforming it into the storage battery, which will work seamlessly by giving customers the ability to charge their Tesla vehicle.

Cost Advantages

SolarCity has become a vertically integrated manufacturer and provider by doing everything from making the solar cells to installing them for customers. SolarCity benefits from economies of scale by combining highly efficient panels with a high volume of product from factories and a simplified manufacturing process.⁴³

⁴³ <https://www.technologyreview.com/s/600770/10-breakthrough-technologies-2016-solarcitys-gigafactory/>

SolarCity's manufacturing process may also give them a cost advantage. According to Technology Review, SolarCity uses a deposition manufacturing process that reduces the number of steps required to make the cells from two dozen or more to just six. It also replaces silver, one of the most expensive elements of conventional solar cells, with less expensive copper.⁴⁴

Differentiation Advantages

Product Differentiation

Tesla's goal is to make solar power as attractive as it has made the electric car, without losing quality and performance. This goal was articulated by CEO Elon Musk at the unveiling of the Solar Roof product in 2016: "We need to make solar panel as appealing as electric cars have become."

Tesla Solar produces low-profile solar panels with a hidden mounting system and front skirting that makes the panels appear to float on the roof of the home. This is a big change from traditional solar panels, which have had chunky profiles, disrupting roof lines and negatively impacting the aesthetics of customers' homes.

The Tesla solar roof is nearly invisible, and can be made to mimic a variety of roofing tile materials. The solar collectors are contained in just some of the roof tiles, and are indistinguishable when viewed from the street. This is a further improvement from the traditional solar panels in terms of aesthetics, and according to Tesla, the roofs themselves are tough and durable. Tesla states that the roof tiles have a near infinite lifetime.

Tesla's solar products also feature seamless integration with the Powerwall and Powerpack energy storage systems. Another barrier to adoption of solar is that it is weather dependent, but integrated storage allows you to store excess energy for use at night or on overcast days when

⁴⁴ <https://www.technologyreview.com/s/600770/10-breakthrough-technologies-2016-solarcity-gigafactory/>

your solar setup may not be producing as much power.

Brand Differentiation

This product differentiation is particularly powerful in a market that is largely undifferentiated and lacking in brands. Tesla has a strong brand, known for quality and luxury, due to its electric vehicle business. If this brand reputation carries over to Tesla Solar, this confers an advantage over other installers and providers.

Because the solar products that Tesla is providing are manufactured for Tesla exclusively, and because the Tesla brand reputation is very difficult to imitate, this advantage is sustainable.

3 Circle Targeting

Target Market Segment

Environmentalists

Key Competitor

Forward Labs Solar Roof

Goal

Figure out how SolarCity can increase market share by creating more value for environmentalists than Forward Labs Solar Roof does.

Customer Perspective

SolarCity

Importance benefits and features	Importance to consumer (1-10)	How I think customers evaluate the firm (1-10)
Price of solar panels	10	10
Generating own electricity	8	8

Improving the environment	8	9
Increasing the lifetime value of customer home	7	4
Color Availability	0	4
Installation Time	8	10
Weatherization warranty	9	9
Deposit required	8	7
24/7 access and back up energy	10	7
Elegant and design of solar panels	10	8

Total Score: 78

Forward Solar Company:

Important benefits and features	Importance to consumer (1-10)	How I think the customers evaluate the firm (1-10)
Price of solar panels	8	10
Generating own electricity	8	8
Improving the environment	8	9
Increasing the lifetime value	7	4

of customer home		
Color availability	10	4
Installation Time	9	10
Weatherization warranty	9	9
Deposit required	8	7
24/7 access and back up energy	4	7
Elegant and design of solar panels	10	8

Total Score: 81

Key Features:

The Tesla Solar Roof offers a lifetime-of-the-house warranty, plus a 30-year power generation guarantee. The roof is priced at approximately \$21.85 per square foot for a typical home and comes in four attractive types of tiles. The roof system includes integration with a smartphone app and the Powerwall battery storage system. The solar roof product is capable of feeding renewable energy back into the grid from a connected home.

Tesla solar tiles are rated at 12 Watts per tile (2 6 watt cell per solar tile <https://www.solar-estimate.org/news/2018-04-21-shout-it-from-the-roof-top-elon-musk-goes-solar-in-a-big-way>), and each cell is less than a square foot, resulting in 13.92 rating per square foot of solar tile. The typical home will need 40% coverage in solar tiles, meaning that the output of the entire roof will be about 5.6 watts per square foot. This output can be changed by adding more solar tiles, at a higher price.

We identified Forward as a key competitor in the solar roof market. Forward offers a solar roof in one style, similar in appearance to a standing seam metal roof. The roof comes in eight colors currently, but Forward states that with their process, they can theoretically make the roof in any color. The Forward solar roof is less expensive, coming in at \$8.50 per square foot plus \$3.25 per watt of power generation. The roof boasts a robust 11 watts of generation per square foot, plus air venting to help keep the roof cool during power generation. Forward offers the roof with a 30-year warranty.

Firm Perspective

Key Features

The Tesla Solar Roof offers a lifetime-of-the-house warranty, plus a 30 year power generation guarantee.⁴⁵ The roof is priced at approximately \$21.85 per square foot for a typical home, and comes in four attractive types of tiles.⁴⁶ The roof system includes integration with a smartphone app and the Powerwall battery storage system. The solar roof product is capable of feeding renewable energy back into the grid from a connected home.⁴⁷

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⁴⁵ <https://electrek.co/2018/05/26/tesla-solar-roof-tiles-up-close-look/>

⁴⁶ <https://electrek.co/guides/tesla-solar-roof/>

⁴⁷ <https://www.solarreviews.com/blog/comparing-the-telsa-solar-roof-to-conventional-residential-solar-panels>

⁴⁸ <https://www.solar-estimate.org/news/2018-04-21-shout-it-from-the-roof-top-elon-musk-goes-solar-in-a-big-way>

⁴⁹ <https://www.forwardsolarroofing.com/product>

⁵⁰

<https://inhabitat.com/forward-labs-new-solar-roof-is-33-cheaper-than-teslas-and-it-can-be-installed-in-half-the-time/>

⁵¹ <https://www.solarpowerworldonline.com/2017/05/forward-labs-says-solar-roof-costs-33-less-teslas/>

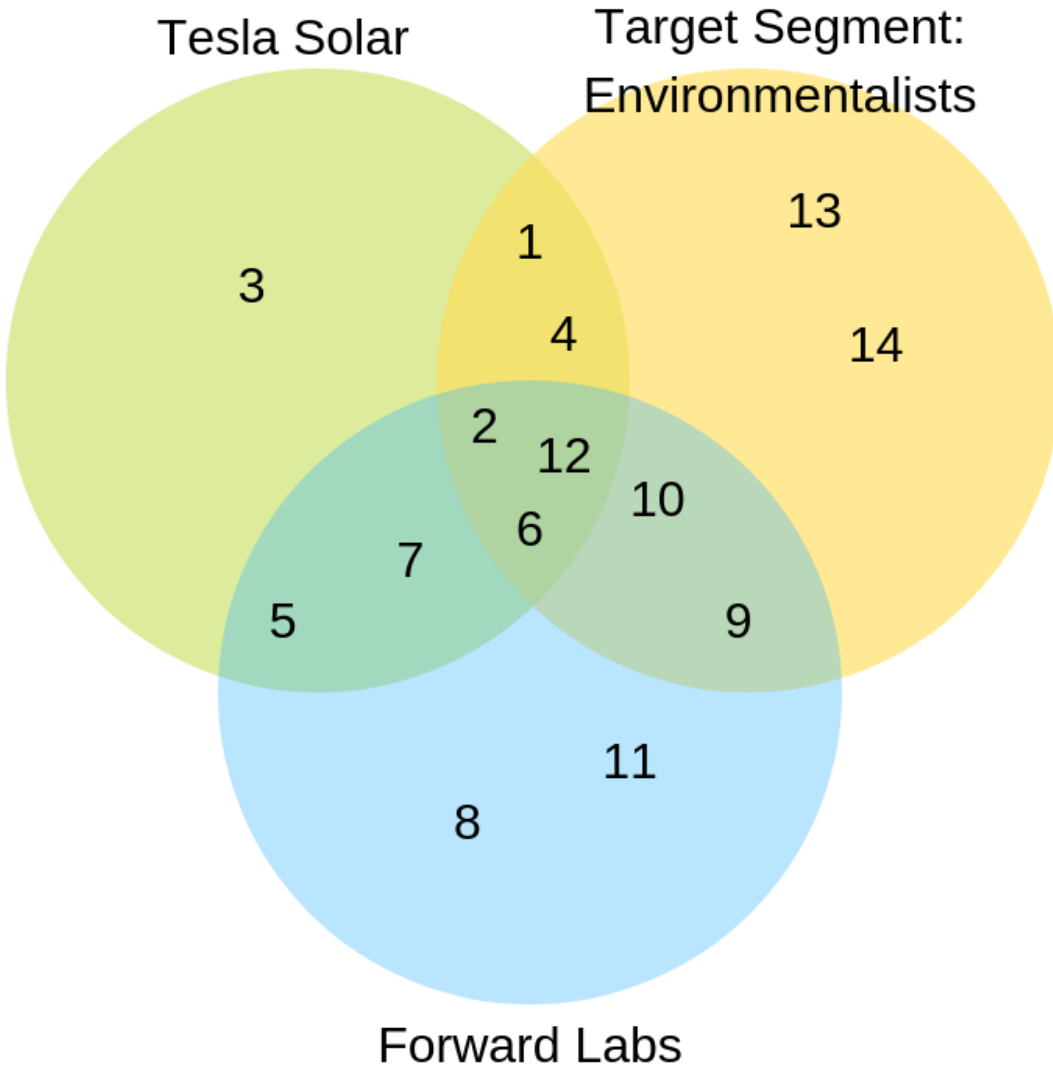
⁵² <https://www.forwardsolarroofing.com/product>

In addition to these features, this segment might also be interested in a DIY kit that they can install themselves, in order to keep costs of switching to solar down. Environmentalists would also be interested in a panel and racking system made at least partially from recycled materials.

As a result of this analysis, we identified the following key features:

1. Lifetime warranty
 2. 30-year generation warranty
 3. Four styles of roof
 4. Smartphone app integration
 5. Battery storage
 6. Feeds back to the grid
 7. Installation included
 8. Eight color options
 9. Low cost
 10. High power generation
 11. Venting
 12. Renewable energy production
-

We have mapped these key features below:



1	Lifetime warranty	8	Eight color options
2	30-year generation warranty	9	Low cost
3	Four styles of roof	10	High power generation
4	Smartphone app integration	11	Venting

5	Battery storage	12	Renewable energy production
6	Feeds back to the grid	13	DIY Installation
7	Installation included	14	Made from recycled materials

Key Opportunities for Growth

This segment values renewable energy and waste reduction. Offering a lower cost option through a DIY kit might appeal to these customers. In addition, offering a product made at least partially from recycled materials might be an opportunity to better serve this segment.

Features That Can Be Eliminated

This segment may be less interested in the appearance of the solar roof. To target this segment, it may be best to eliminate the style options and focus on performance and price.

Features That Should Be Promoted

The integration with the Powerwall battery is of interest to this segment as it reduces the amount of grid power used.

The integration with the smartphone app may also interest these customers since it allows them to track usage and storage and make needed changes to improve the efficiency of their solar system.

POD's to Take Away From Competitor

The Forward Labs offering provides a greater generation capacity at a lower price. These are points of difference that we could adopt from this competitor.

Marketing Goals and Objectives:

“Create a smoothly integrated and beautiful solar-roof-with-battery product that just works, empowering the individual as their own utility, and then scale that throughout the world. One ordering experience, one installation, one service contact, one phone app.”

Goals:

1. Increasing our installations to 20,000 units in 2019. Since in 2018 as a company we were able to install 11,000 units.
2. Grow our market share by 3%
3. Increase brand awareness by 10%

Objectives are performance targets intended to help you achieve goals:

1. Increase our production capacity in both of the Gigafactories in order to be able to install 20,000 units within 2019
2. Continuing to research and develop our technology with regards to solar roof tiles and the powerall in which both products can be easily and seamlessly integrated with one another.
3. Measuring website traffic after every campaign and also measure sales in regards to our marketing efforts.

Segmentation

Primary segments:

We have divided the market into four segments that each stand to benefit from the Tesla Solar Roof in different ways. These segments are: the Environmentalists, the Tech Enthusiasts, the Savers, and New Roof Customers.

Environmentalists:

Environmentalists are individuals driven by their desire to reduce their carbon footprint and reduce waste. These customers tend to be urban dwellers, politically liberal, and college educated. They may already take advantage of renewable energy programs offered by their local power utility. The Tesla Solar Roof offers these customers an enduring source of renewable energy.

Tech Enthusiasts:

Tech Enthusiasts are those individuals who are interested in owning and using the most cutting edge technology available to them as a consumer. These customers tend to be urban dwellers, and usually have a higher income than some of the other segments. They are more risk-tolerant than some segments, and less price sensitive. Tesla's Solar Roof offers these consumers a fully integrated home power system unlike any other on the market.

Savers:

Savers are individuals who are primarily interested in saving personal resources, including money. They tend to be lower to middle income, and are more price sensitive and less risk tolerant than the Tech Enthusiast. The Tesla Solar Roof offers them an opportunity to reduce or eliminate the cost of home electricity.

New Roof Customers:

New Roof Customers are consumers who may not fit into the above segments, but who own a home or other property that needs a new roof. Individuals in this segment tend to be middle income and up, but are more price sensitive than the Tech Enthusiasts. They are often married with children. The Tesla Solar Roof

offers these individuals a durable and attractive roof with the added benefit of home power generation.

Targeting:

We have decided to target the Environmentalists segment. We believe that these consumers are the ones who will find the primary benefit of the Tesla Solar Roof, the generation of renewable solar power, the most attractive. While the Tech Enthusiasts may have more disposable income in general, we don't believe that they'll find the generation of solar energy as compelling as the Environmentalists. In addition, the Environmentalists will be less price-sensitive than the Savers or the New Roof Customers, and strongly motivated to invest in solar power generation.

Positioning Strategy

Environmentalists

Positioning statement: *SolarCity provides environmentalists with a solar energy option that is more integratable, and durable than any other solar panel company.*

SolarCity serve environmentalists by allowing them to generate clean, renewable electricity completely off-the-grid with a unique mix of solutions: Powerwall, Powerpack and Solar Roof. While Tesla's solar panels are not the most efficient or affordable, they are the most durable. Tesla's website boasts an infinite lifetime warranty for the solar roof, stating they more than three times stronger than standard roofing tiles. The solar panels comes with a 20 year warranty, but many components are designed to last 35 years. The integration with the smartphone app allows them to track usage and storage and make needed changes to improve the efficiency of their solar system.

Marketing Implementation

Increase awareness among green early adopters

Youtube

Tesla refuses to be involved in paid advertising or social media other than Twitter and Instagram. This makes it difficult to spread brand awareness and gain new customers. The upside is decreased costs for Tesla, contributing to the bottom line and it allows them to pass on savings to customers. Fortunately, Tesla has become known worldwide without much advertising expenditure or social media, so they have proven it's possible. However, some form of promotion is necessary to increase awareness of SolarCity. Tesla has recently put out a commercial-like video highlighting their vehicles and mission to change the world on Youtube in Taiwan. While it isn't a paid ad, Tesla did have to pay to produce the video. We recommend that Tesla continues making videos to communicate its values, and highlight the solar roofs in a similar fashion.

Leverage Tesla's existing customer base

One of the main potential sources of future sales comes from Tesla's existing customer base. Tesla should exploit this customer base with good customer service and building relationships. This can be done by continuing to sell the solar panels at brick-and-mortar stores next to Tesla vehicles with sales teams that can educate customers on the roofs.

Promote Tesla's customer service and warranty

Tesla should continue to promote its lifetime warranty for the solar tiles and communicate that they put the customer first.

Partner with homebuilders

Tesla should partner with accredited homebuilding companies and roof installers. The residential roofing market in the U.S. is worth about \$10.4 billion per year.⁵³ Tesla

⁵³ <https://www.freedoniagroup.com/Roofing.htm>

should target homeowners looking to buy new roofs and communicate that the price of the solar roof is very close to a conventional roof and that over 30 years, the roof will generate \$52,900 worth of energy, which means it could eventually pay for itself and turn a profit.

Implementing an email marketing campaign:

We will be targeting cities such as San Francisco, Indianapolis, Las Vegas, and Jacksonville these cities are currently expanding in the solar installation industry and we feel that there is tremendous market share and installation capabilities for this market. For our campaign first campaign we will target the environmentalist from the ages of 20-30 in the cities listed above. In the email will explain Solarcity's product offerings and have a clickable button for customers to receive a free quote. This campaign will be sent out beginning January 1st. Since the federal solar tax credit is beginning to decrease the percentage that is claimable for taxes starting in 2020 we want to be able to capture as much new customers quickly so that they can reap the benefits. After the first campaign our second one will target customers that were on Solarcity's website browsing our offerings and left the page without inputting their information in for a free quote. As a company we will be spending 2,0000 to 3,000 dollars in the first 6 months.

Hiring bloggers to write content about Solarcity:

A an incentive for current homeowners that have its solar panels installed would be since they love the produce so much. Tesla can reach out to them and have them write blogs about their experience starting from the decision process all the way up to the purchasing of the solar panels. These blogs with help increase awareness of the brand at a low cost and also potential customers get an inside look of how the product is going to work if they decide to purchase it.

Evaluation and control:

Solarcity will be wanting to expand into new markets that have not yet been served in which Solarcity will be able to gain new market share from this. We believe that we will be able to grow our market share by 3% within the next two years coming into these new markets. After our email marketing campaign we will track the number of customers that were brought new versus the numbers before we started the campaign to track the success. We are also going to measure our customer's acquisition cost since this will help us acquire customers but also retain them at the same time. Measuring site traffic will help tell our company how are brand awareness is going since the increased in site traffic would usually be due increased consumer knowledge and increased brand awareness.