

Product management capstone project scenario

Initial product scenario

Congratulations and welcome to the product management capstone project. In this project, you will take a product scenario as a challenge and deliver numerous documents that are similar to those created by a product manager in a real-word environment.

You will act as a product manager for Solar-R-Us (SRU) LLC. SRU produces a number of solar products, including water heating systems, pool heating systems, and solar powered heaters for commercial and personal use. The product you will focus on is a solar water heating system.

As the product manager, you will analyze the product and create critical documentation to support the product from conception through retirement. As the scenario evolves, you will realize that this product concept includes the need for information technology support as well!

Your journey will include the following activities:

Activity	Deliverable	Tools
Initial scenario part I		
1.1.1 Product manager skill inventory	<ul style="list-style-type: none">Review key skills required to be a successful product managerDefine top skills required of the product manager to support this scenario	<ul style="list-style-type: none">Product manager skills checklist
1.1.2 Porter's Five Forces Model	<ul style="list-style-type: none">Describe which of the five forces SRU must consider and deal with	<ul style="list-style-type: none">Activity worksheet

	<ul style="list-style-type: none"> Develop potential strategies to deal with the five forces 	
1.1.3 Ansoff matrix	<ul style="list-style-type: none"> Plot strategy options on the Ansoff Matrix and justify your analysis 	<ul style="list-style-type: none"> Activity worksheet
2.1.1 Product concept document	<ul style="list-style-type: none"> Perform an internal and external impact assessment Create a product concept document 	<ul style="list-style-type: none"> Activity worksheet Product concept template
2.1.2 Product vision	<ul style="list-style-type: none"> Create a product vision 	<ul style="list-style-type: none"> Product vision template
Scenario update part II		
2.2.1 Product requirements document (PRD)	<ul style="list-style-type: none"> Review updated scenario: Additional functional and non-functional requirements are added to include the need for an application (app) to support the system. Create a product requirements document (PRD) Create user stories and a product backlog to support app development 	<ul style="list-style-type: none"> PRD template User story templates Product backlog template
2.2.2 Product roadmap	<ul style="list-style-type: none"> Develop a product roadmap 	<ul style="list-style-type: none"> Product roadmap template
2.2.3 Business case	<ul style="list-style-type: none"> Develop a finalized business case 	<ul style="list-style-type: none"> Business case template
	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">

Scenario updates part IIIA and IIIB		
3.1.1 Beta Plan	<ul style="list-style-type: none"> • Review updated scenario IIIA • Create a product requirements document (PRD) • Create a beta plan 	<ul style="list-style-type: none"> • Beta plan template
3.1.2 Useability testing	<ul style="list-style-type: none"> • Review a retrospective • Analyze findings • Make recommendations 	<ul style="list-style-type: none"> • Useability testing analysis checklist
3.2.2 Launch readiness	<ul style="list-style-type: none"> • Review beta test results and functional status scenario update IIIB • Assess launch readiness • Make recommendations 	<ul style="list-style-type: none"> • Launch readiness checklist
Scenario update part IV		
4.1.1 Product narrative and positioning statement	<ul style="list-style-type: none"> • Review updated scenario • Create a product narrative and positioning statement 	<ul style="list-style-type: none"> • Beta plan template
3.1.2 Useability testing	<ul style="list-style-type: none"> • Review a retrospective • Analyze findings • Make recommendations 	<ul style="list-style-type: none"> • Product narrative and positioning template
4.1.2 Market collateral	<ul style="list-style-type: none"> • Define marketing collateral options • Assess launch readiness • Make recommendations 	<ul style="list-style-type: none"> • Marketing collateral options listing

4.1.3 Demand generation plan	<ul style="list-style-type: none"> • Create a demand generation plan 	<ul style="list-style-type: none"> • Demand generation plan template
4.2.1 Product Lifecycle	<ul style="list-style-type: none"> • Map product to product lifecycle • Define required activities 	<ul style="list-style-type: none"> • Activity worksheet
4.2.2 End-of-Life (EOL) plan	<ul style="list-style-type: none"> • Develop an EOL plan 	<ul style="list-style-type: none"> • EOL plan template

Initial scenario: Part I

The solar water heater market

Solar-powered water heaters and furnaces become increasingly popular due to their energy efficiency and environmental friendliness. According to a report by Forbes, "Solar water heaters can pay for themselves in as little as three to six years after the upfront investment." A report by Market Research Future states that, "The solar water heater market size was valued at USD 3.7 billion in 2022. The market industry is projected to grow from USD 4.01 billion in 2023 to USD 7.71 billion by 2032, exhibiting a compound annual growth rate (CAGR) of 8.50% during the forecast period (2023–2032)."

The primary market for solar powered heating is home or apartment owners and commercial businesses. You can summarize the market problem or opportunity as follows:

- There is a growing demand for energy efficient water heaters and furnaces. Energy costs continue to rise. According to a Forbes article, the average monthly utility bill for Americans is \$430. However, the cost of heating a home and water can vary depending on factors such as the size of the home, age of appliances, climate, and energy costs in your state. The US Department of Energy predicts that installation of a solar water heater will save you 50-80% off your heating bill.
- Extreme climate conditions are driving the need for more energy efficient and functional heating systems around the world.

- Government mandates restricting greenhouse emissions are forcing more and more individual and commercial consumers to seek immediate water heating and furnace upgrades that comply with new regulations and reduce the carbon footprint of the consumer.
- Renewable energy solutions are popular. In many cases, local, state, and federal governments provide incentives such as low interest loans, tax credits, and reduced insurance costs to enhance early payback. The primary drawback of pursuing a solar solution is the high investment cost.
- Conventional water and heating systems are becoming less and less supportable as the industry moves toward more environmentally friendly solutions.

Solar-R-Us (SRU) LLC produces multiple solar-powered water heating systems. They are upgrading their current product mix. A new solar water heating system was proposed which will provide several advanced features and functions that will address the market problem.

Sarah Madison is assigned as the product manager for this effort. Sarah will need to work closely with an internal team consisting of product developers, manufacturing, marketing, operations, customer support, and sales. She will drive the completion of an internal assessment.

Sarah must also work with external partners to include distribution channels, suppliers, and interface with prospective customers. Sarah will lead the way to ensure the product management lifecycle is used to SRU's advantage. She will drive the completion of an external assessment.

There will be intensive collaboration required under tight deadlines to ensure the new product concept meets the needs of the organization and market. In addition, Sarah will need to drive all market development efforts for the new product offerings.

SRU has a website that customers can access to view product offerings, purchase systems, and schedule installations. The primary distribution channels are online sales through Amazon, Home Depot, Lowes, Walmart, and Costco to name a few.

The product proposal

The proposed new product design initially shares the following features, functions, and options.

- **Solar collector options:** Evacuated tube or flat plate solar collectors.
 - Evacuated tube solar collectors are a type of solar thermal collector that use a series of vacuum-sealed tubes to collect and store heat from the sun. They are highly efficient at capturing solar energy and are ideal for use in solar hot water and heating systems. SRU believes their new technology improves efficiency and reliability compared to competitor systems.
 - A flat plate solar collector is a device that uses solar energy to generate thermal energy. It is a type of solar panel that converts solar power into thermal energy, which can be used for various purposes such as space heating and water heating. The device consists of a flat, rectangular box with a dark-colored absorber plate inside. Sunlight passes through the glass cover and is absorbed by the absorber plate, converting solar energy into heat energy. Flat plate collectors tend to be cheaper than evacuated tubes because they are a simpler design and easier to manufacture.
- **Water tank and storage options:** The new product line will offer three potential water storage solutions.
 - **Only solar:** The system produces up to 150 liters of hot water each day. Water flows directly from the solar collector to your tap. There is no need for a tank.
 - **Conventional water heater:** The solar collector is connected with a conventional water heater. The hot water is circulated to the heater for later use.
 - **Instant water heater:** The solar collector is connected with a smaller, more compact instant water heater. Instant water heaters never run out of hot water, last five to 10 years longer than tank heaters, are more efficient with no standby heat loss, take up less space and can even be installed on walls or outdoors with an anti-freeze kit, and eliminate the extra cost of keeping 40 to 50 gallons of water hot in a storage tank, so you waste less energy.

Competitive landscape

There are a number of viable competitors in the solar water heating market. They include General Electric, Rheem Manufacturing, Racold, Sun Pad, Bosch, and more. Substitute product risks are high. Rivalry among competitors is also high. SRU wants their pricing to be competitive. However, they are leaning toward positioning their product based on features and functions.

Materials and equipment required include solar collector panels, storage tanks, heat exchangers, copper tubing, insulation material, and plumbing fittings. SRU will need to manage a complex supply chain to ensure all required materials and equipment are available at a reasonable price. Other competitors are vying for like materials and equipment which gives suppliers the upper hand.

An advantage for SRU is that they are established. Establishing a new solar heating company is expensive. Fixed costs required to start up are high. There will likely be few new competitors in the short-term. A key goal is to increase the current SRU market share by 20%.

More and more buyers are entering the solar water heating market. Continual government regulatory changes and incentives to use a solar solution will continue to drive the market upward. Commercial buyers are looking to reduce their cost of goods sold (COGS) and increase profit margins. SRU performed a preliminary cost analysis and estimates an 40% return on investment (ROI) in Year 1.

The time it takes to schedule a solar heating installation depends on several factors, including local permitting and inspection processes, the size and type of solar panel system, and the utility company and interconnection. The time period for a solar panel system to be up and running can range from a few weeks to as long as half a year. This is an advantage for SRU. Demand is currently outpacing supply. Buyers who want installation earlier than later will have to pay a premium. Another key goal is to reduce customer installation waiting time by at least 50%.

SRU LLC differentiators

- Most solar hot water systems have required professional installation with a price tag of USD 4,000 to USD 8,000. SRU believes they can provide a quality product with at least 10% savings over the competition.
- SRU believes its system is more user friendly, innovative, and aesthetically pleasing. SRU offers an easy to install application that provides for easy customer management of the system to include flow, storage, temperature, and low energy use options.
- SRU prides itself on possessing ground breaking technology that exceeds anything the competition can offer. In particular, their solar panel technology. This includes high-efficiency solar cells that can convert more sunlight into electricity, bifacial solar panels that can capture sunlight from both sides and increase energy output, flexible solar panels that can be installed on curved surfaces and integrated into various applications, and transparent solar panels that can be used as windows or skylights and generate power without blocking light.
- SRU's system can reduce carbon dioxide emissions. SRU estimates annual reduction corresponds to 100 planted trees.
- SRU's system has fewer components than the competition's systems and is virtually maintenance free.
- SRU's insulation design allows the tank to maintain high water temperatures longer than most competitive products. An initial engineering goal is to improve efficiency by 25%.

Summary: You are now ready to complete activities 1.1.1 through 2.1.2. Additional scenario updates will be provided as you progress to satisfy follow-on activity requirements.

- Product manager skill inventory
- Porter's Five Forces Model
- Ansoff matrix
- Product concept document
- Product vision

Scenario update:

- The product management team reviewed potential product users for the new solar water heating product mix. The team agreed that along with commercial and residential customers, a large market segment exists in supporting government facilities. Government agencies are facing mandates to reduce energy costs and their overall carbon footprint. In addition, government budgets are under scrutiny as national debt obligations increase. The team agreed that the new solar water heating product line will provide customers with a less expensive alternative, with a more user-friendly, innovative, and aesthetically pleasing system.
- The basic system consists of a solar collector, water storage system, and water delivery systems are primary. However, the team met with focus groups from management and potential commercial and residential buyers and defined the following new requirements that will require an agile or Scrum approach.
 - Many commercial customers stated a need to be able to monitor system efficiency, measure system efficiency, identify system issues, and configure the system in real-time to meet changing environmental conditions. Solar-R-Us (SRU) will develop an app that will link with the solar water system and provide real-time data and metrics. In addition, the app will monitor the system and provide real-time fault indicators. Link to the app will allow for troubleshooting, diagnostic reports, and automated fault eradication.
 - There will be an app to support commercial installations and a second App to support residential installations. There will be costs incurred to hire an external developer to develop the app. The app will support both Apple and Android users and is free for all buyers and users to download. You must have an installed system the app can link to access features.
 - Many residential users requested a standard console that is linked to the system to monitor and adjust the system operations and outputs. In addition, they want the console to automatically detect optimal solar collection settings and adjust the collector positioning accordingly. The console will be mobile and require no hard connections. The console will access the system via wireless.
 - The app will provide an opportunity to link directly to a help desk function 24/7 that SRU will establish prior to the product launch. The app will also include a troubleshooting guide and frequently asked questions.

- SRU management wants the app to track users, and issues, and provide diagnostic information. Management will use this data to determine system upgrade requirements, and sustainability costs, and fine-tune marketing efforts.
- Both commercial and residential users want the app to be secure and ensure user information is not available to third parties. SRU developed the following go-to-market timelines broken out by quarterly (3-month) phases. This is their year one plan.

Phase 1: Q1

- Design and develop multiple commercial and residential solar collector systems.
- Identify and procure multiple water tank and storage options compatible with SRU solar collection systems.
- Finalize all supply chain and distribution system contracts.
- Evaluate the current product mix. Determine which products will remain and which will be retired.

Phase 2: Q2

- Beta test commercial solar collection systems.
- Design and develop residential solar collection systems.
- Finalize water tank and storage options. Procure initial inventory to support systems launch.
- Begin retirement activities for systems to be phased out of the product mix.

Phase 3: Q3

- Beta test residential solar collector systems.
- Design, develop, and beta test app prototype for commercial systems.
- Design residential system management console.
- Finalize commercial solar systems for launch.
- Finalize system retirement activities.

Phase 4: Q4

- Finalize and launch commercial system app.
- Launch commercial solar water heating systems.
- Beta test residential console.
- Design, develop, and beta test app prototypes for residential systems.
- Prepare to launch residential systems and app in Q1.

Additional Analysis

- The team continues to assume that they can market the cost savings and differentiate on quality.
- Internal support will be required from marketing, operations, manufacturing, sales, and customer support. These resources must be part of the cross-functional team.
- External resources required include part and component suppliers, and distribution channel partners.
- The team believes the current proposed product mix will have a three-year profitability window.
- The team refined their investment information as follows:

Year	Investment/Costs (USD)	Returns (USD)	Cash Flow (USD)
Initial	\$2,500,000		\$2,500,000
1	\$500,000	\$3,200,000	\$2,700,000
2	\$250,000	\$3,500,000	\$3,250,000
3	\$100,000	\$2,500,000	\$2,400,000

Internal rate of return (IRR): 98%

Net present value (NPV) at 15%: USD 3,376,810

Risk: The current risk analysis highlights:

- Design and development delays
- Supply chain issues
- Distribution channel issues
- Cost overruns
- Slow customer adoption rates

Issues: Management is currently recruiting two new developers to overcome a potential skill and capacity issue. They are confident the issue will be resolved. In addition, a potential funding shortage is being addressed and expected to be resolved in the near term as well.

Scenario update:

- The development team procured all materials and system components to complete residential solar water heating prototypes. This collection included several solar collector, water tank, and storage options. They developed prototypes to support small, moderate, and large commercial users. In addition, they developed an initial app prototype for use with commercial systems as well.
- The initial beta plan will focus on commercial systems. The team wants to ensure the system configuration meets the needs of various commercial users. The team plans to invite three small system users, three moderate system users, and two large system users to observe the systems, provide feedback on system configuration options, share thoughts on proposed pricing models, and recommend potential improvements. In particular, the team wants to:
 - Validate all system functions and features work as planned.
 - Validate marketing value propositions, positioning messages, and pricing options.
 - Ensure planned demo methods at the beta test are effective.
 - Gain customer feedback and insights.
 - Complete refinements before launch.
- Total costs to conduct and complete the beta testing will be approximately \$10,000. Funding was approved and sourced by the marketing director. Someone will configure the prototype systems for small, moderate, and large users on consecutive days. All testers agreed to sign a Non-Disclosure Authority document stating they would not release any system information to the public.
- All testing will be completed within four hours each day. Someone will conduct initial testing from 10:00 AM to 12:00 PM. There will be a one-hour catered lunch. Then, advanced testing will occur between 1:00 and 3:00 PM.
- All documentation and test results will be compiled. Someone will analyze the final testing results within one week of beta testing. All system refinements must be completed two weeks after the conclusion of beta testing. The team assumes no major refinements will be required. Someone will need to delay the launch if major refinements are necessary.
- UX will be present during beta testing as well. Their primary focus is ensuring users can easily download and manage the system using the app. Ultimate goals for users include:

- Download the app, review the instructions, and access the app functionality with minimal questions.
- Ask users to manage the system using the app, break for a catered lunch, and return to the test. The goal is to determine if users can access functionality after a brief lunch break.
- UX will monitor how long is required to download the app, understand the app features, and begin operating the system effectively. The goal is to complete this within 15 minutes or less.
- The UX team will watch closely for operational errors and analyze how the users deal with these errors. They will assess if users can self-correct or if additional guidance is required. The goal is that all users can self-correct 100% of all errors without assistance.
- At the end of the test, users will be asked to evaluate their satisfaction with the overall system at a retrospective. The questions will ask what they like and what they would like to see improved and provide improvement recommendations. UX assumes most input will involve system configuration, equipment options, pricing, and App operations. The ultimate satisfaction goal for the initial beta tests is a 4.5 out of 5-point rating.
- The product manager works closely with key development team members to conduct testing. Marketing, manufacturing and operations, and customer support will participate as observers to collect feedback data.
- Solar R Us (SRU) has solid relationships with several commercial partners who currently use a variety of their solar systems. The team conducts status meetings weekly for all participants. In addition, all participants are communicated with weekly to share status and updates as well.
- SRU will pay participant travel costs to the testing site. The participants are relatively close to the SRU plant. In addition, someone will offer options to upgrade their current systems with the new product line at significant discounts.

Scenario update part IIIB

The beta plan was developed and approved in March 20xx. Commercial system beta testing and useability testing were completed last week. It is currently 30 April 20xx. All beta test reports were consolidated and reviewed. The launch is planned for May 25, 20xx. The beta testing effort was managed by the product manager and key stakeholders from Marketing, user experience (UX), and Sales. Customer support and manufacturing and operations were periodic observers during the testing and provided required subject matter expertise as required.

- The small and moderate-sized solar water heating systems worked perfectly as planned. The app worked as required. The large system test ran into some issues that must be addressed before launch.
- Large system solar collector energy storage efficiency was lower than expected. The vacuum-sealed tube configuration requires a modification before launch to satisfy system specifications and validate product positioning claims. Engineering is confident they can make the required modifications by mid-May before launch.
- The app did not recognize the large system configuration model. The app provided minimal functionality needed to manage and monitor the system. However, certain features were not operational. The app developer was notified, and their team is expediting a fix to be completed by May 10, 20xx.

The UX team worked closely with users during the beta testing. Their findings were as follows:

- Users had a few issues learning how to operate and configure the system. The biggest problem was with the large system configuration and setup on the app. This must be addressed. In addition, users asked for a downloadable manual with illustrations instead of an all-text tutorial.
- Adjusting the solar collector to attain optimal efficiency was a challenge for the users. The optimal setup is based on weather conditions and other seasonal conditions. The sales team had difficulty explaining the steps required to take advantage of and understand this feature and some users were confused. This issue must be addressed.

- Users found several typographical errors in the system instructions. This is an editing issue that will require a review and update of system documentation.
- Overall the users were pleased. They were very interested in comparing the costs of using the SRU system compared to other competitor models. SRU needs to work on its value proposition and positioning statements to provide greater cost of ownership data. Cost savings over the life of the system is a major product positioning consideration and marketing collateral must be credible.

Status reports were received from each key function

- **Sales:** The sales team needs to complete system training. There were gaps in their demo presentations. All training must be completed one week prior to launch. In addition, sales asked for non-technical tutorials to enable them to present system specifics in non-technical terms.
- **Manufacturing and operations:** Manufacturing stated that lead time for certain components to support large user systems can impact delivery. They are working to finalize delivery systems and address blockers prior to launch.
- **Customer support:** Two additional personnel were requested to support the post-launch help-desk requirements. These two positions were approved, and HR is currently recruiting candidates. These new personnel must be trained and in-place within one week of the launch. In addition, the support team wants a better-defined troubleshooting process to assist customers if they encounter issues. The current procedures are lacking.

Additional information:

- All launch plan updates are complete. Approval is pending the finalization of all action items.
- Documentation to support the system and the app must be updated to accommodate changes made as a result of beta testing and address errors.

- Business plan updates have been proposed and are pending evaluation and elimination of issues.

The team is very confident they can address all issues and complete required product refinements and support requirements before the planned launch date.

Scenario update part IV

The commercial solar water heating system is being prepared for launch. Beta testing is complete. All readiness assessment issues were resolved. The team is making final pre-launch preparations to ensure the launch is a success.

The team has two key areas to address. First is demand generation planning. A demand generation plan will be needed. Second is the retirement of a legacy solar collector SRUSC 2236. This solar collector will be replaced by a more efficient and lower-priced solar collector and must be retired.

Demand generation

The launch is still planned for May 20xx. The focus now shifts to demand generation. A budget of \$280,000 and a team of 12 marketing and sales personnel are dedicated to this effort. The following decisions were made by the team.

- An aggressive marketing campaign will be conducted over six months. Their primary theme is "Save money and the environment with solar water heating." This is a simple theme and is not novel. However, marketing believes this theme is accurate, brief, concise and captures the gist of the opportunity their systems provide. The team hopes to optimize sales during the summer months when the weather is most conducive to system assembly and installation. The SRU marketing director will manage the campaign from end to end.
 - The initial target segment is commercial customers. SRU will target small, moderate, and large existing and potential commercial users who are hoping to reduce their overall energy costs and maximize their profits. SRU currently has a listing of over 200 commercial users who have used their products in the past and provided registration data. In addition, they researched and developed a list of over 500 potential customers who may benefit from their new system. A key marketing objective is to double the number of existing and new commercial firms contacted to over 500 during the six-month marketing campaign.

- SRU hopes to participate in two popular trade events in the next six months. They will establish a mock-up and be able to share video demonstrations of their products. They will use an ROI calculator at the demos to allow customers to quickly calculate system Return on Investment (ROI).
 - SRU has targeted a website update. They are hoping for over 1500 visits in the first six months. They will also create product brochures and sell sheets, along with product fact sheets. They requested 10,000 of each be printed. These will be made available to all potential customers immediately upon product launch.
 - Product demos and videos will be available to the sales and marketing teams to support the product launch. Demos will be shared on social media. SRU plans to pay for greater search engine optimization (SEO) through an external partner. A mock-up will be developed shortly after launch to support trade show attendance. In addition, system prototypes are available for demo at the company site. A competitive product comparison white paper will be developed within two months after launch. SRU plans to test initial installed systems to validate cost data.
- A rigorous training program is underway to ensure all manufacturing and operations, sales, marketing, and distribution channel support personnel are trained and ready for launch. The goal is 80% of all personnel trained by launch with an additional 20% within three months after launch.
- The team did some research and noted "The global solar water heater market is expected to grow at a compound annual growth rate (CAGR) of 8.5% from 2023 to 2032, with the industry projected to grow from USD 4.01 billion in 2023 to USD 7.71 billion by 2032." This data validates the product concept. The team forecasts an ROI of 98% in Year 1. They plan on Year 1 returns after costs of \$3,200,000. They are forecasting an NPV of \$3,376,810.
- SRU reached out to three leading influencers to potentially gain their support, endorsements, or partnerships. They include:
 - **Nico Johnson** is the founder of the Sun Cast podcast which is one the best podcasts for the solar industry. He advocates clean tech and talks about improving leadership in the solar industry.
 - **Jigar Shah** is the co-founder of Generate Capital, which is an investment and operating platform that builds, owns, operates, and finances infrastructure

assets involving the world's critical resources: energy, water, agriculture, and basic materials.

- **Yann Brandt** is an advocate for energy entrepreneurs. Brandt enjoys helping others start their companies and engaging in the conversation as to how to improve solar.
- SRU will participate in and set up exhibitions in the following trade events over the next six months.
 - **Intersolar north america:** A huge solar energy event with 4500 attendees and 275 exhibitions.
 - **Clean power conference and exhibition:** CLEANPOWER unites the most knowledgeable minds in clean energy to chart the future of this powerful industry and discuss the opportunities ahead.

Solar collector model SRUSC 2236

SRUSC 2236 is a solar collector that will be replaced by a more efficient and lower-priced solar collector. This model is used to support many existing customers, is no longer supportable, and must be retired. This model will be replaced for all commercial systems by SRUSC 2454.

SRUSC 2236 will be retired over a one year from the new commercial system launch. All existing customers were notified via both mail and email and offered a replacement SRUSC 2454 at a 50% discount with free installation. Sales representatives plan to call some of the most critical customers to share this information and options by voice. A series of Teams video conferencing calls are scheduled, along with a notification and videos sharing the conversion plans on the SRU website.

Ultimate critical success factors include 100% reach to inform all current SRUSC 2236 customers and conversion of all SRUSC 2236 to SRUSC 2454 within 18 months of the new system launch. All warranty and contractual leases will be honored. SRU will continue to service the SRUSC 2236 to the maximum extent possible while parts are available. They let consumers know that no additional parts inventory would be added and that failure to replace the system may put the firms at risk of eventually losing service.

Most customers have not had an issue with this as they understand solar technology continues to advance. The SRUSC 2454 is less expensive to purchase and maintain and is

much more efficient than the SRUSC 2236. It also requires less space to install. The SRU 2454 is also compatible with the new app being developed unlike to older model. SRU provided ROI calculators to illustrate payback and long-term energy cost savings.

A cost analysis was performed, and SRU will break even after providing the customer discount. However, they believe the support they provide may result in additional sales for upgraded systems and generate goodwill among their customer base.

Risks include the inability to reach all customers, unwillingness of customers to fund the conversion, SRUSC 2236 technical failures before the retirement period ends, parts and inventory shortages, and a potential lack of iUnwillingness stallation personnel to handle conversion demand.