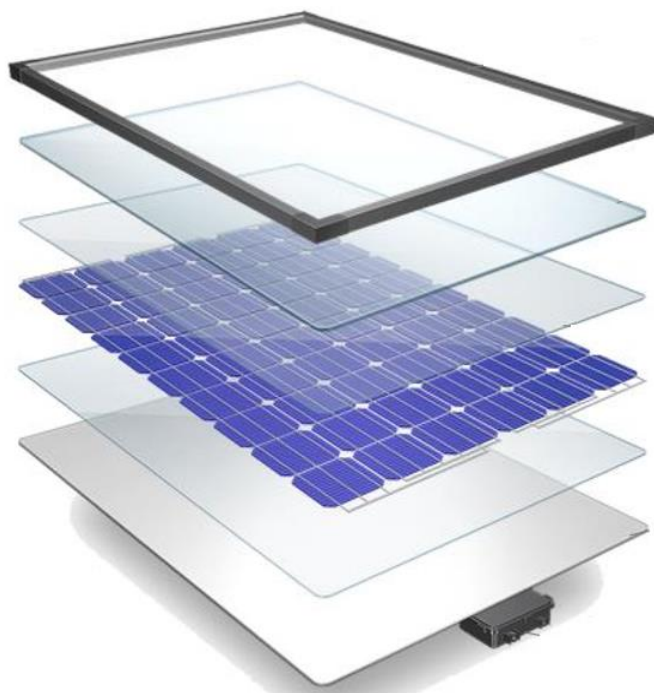


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# Business Plan for Solar Panels and Battery Storage



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Business plans are a formal form to write down the structure and area of your business. This is considered the foundation of the business upon which an entrepreneur builds an enterprise. Depending on the industry, innovation is an important part of the business structure. Adjusting the business plan according to research done within the business field is important as an entrepreneur. A business plan has two forms, business description plan or business model canvass. The objective for the research was to determine which business plan structure was best suited for a business in solar panels and battery storage.

The business description plan and business model canvass are elaborated on and it is explained what content should be included in every chapter for the business plans. These are considered for the business based upon their structure and what is most useful for the entrepreneur.

These are both perfectly fine business plans structures to follow and the conclusion is purely based upon the author's preference. The business plan structures are considered and the business model canvas prevails for creating a business in solar panels and battery storage. As a result of the findings, a business plan is created and ready to be used for a startup company within the previously stated area. This business plan services as a template that other people could use as an example and structure their business plan accordingly.

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## 1 Introduction

Internationally, there is a growing demand for electricity; it is used to power a computer, the internet use, climate control for buildings, or to power an electric car. Everything uses electricity and put a growing pressure on the existing electrical grid.

In the Netherlands, investments in the electrical grids are needed. The electricity use will double in the following 30 years (Ongkiehong, 2006). The current grid will not be sufficient and will need more investments in order to overcome this need. A good way to unburden the electricity network would be to use solar energy on top of companies and households to sustain the use of electric cars, phones, temperature regulators.

According to Vaughan & Gibbs (2019) expectations can on the one hand be that the companies will invest in better electricity grids to provide everyone with reliable electricity. On the other hand, there is a chance they will go with batteries because they are continuously being improved. However, the rate that they are improving their capacity is currently not large enough to be a reliable alternative for the bigger demand of electricity (Loon, 2018).

In recent years, there has been grants to help companies and households use solar panels. With solar energy there are peak moments that consume the most electricity. However, these moments are sometimes not congruent with the demand or supply. This is where batteries could provide the solution depending on their storage capacity.

Because of these developments, there will be an increase in demand for electricity. Seeing that the electricity companies are not sure what their next steps are, there is a gap in the market to provide independent households which are provided by green energy.

### 1.1 The aim of the thesis research

The aim of the research is to study which business plan structure is the best for a developing enterprise in the solar panels and battery storage industry. When the business plan structures are compared, this will result in a business plan made out of that business structure.

However, before the research starts a brief explanation what a business plan is and what it is used for must be given. Afterwards, there will be two types of business plan structures explained for a better understanding of the research.

A business plan lays the foundation for the business and creates a path for the business owner to follow. There are entrepreneurs who establish a business without creating a business plan. This path has a high possibility to take more time which can result in a higher cost. If no business plan is created, the entrepreneur can feel directionless and lose focus in which direction their company should go.

Success is no accident, it requires hard work, determination to study and careful planning. In order to write a successful business plan, the entrepreneur needs to work for it. A business plan paves the road for a successful business, a guideline to success, a statement of goals and hope for the present and future image of the business.

According to Haag (2013) creating a business plan is the key to secure financing, communicating, maintaining focus and helping to create preparations for unexpected events. The business plan is the entrepreneur's idea fully developed in a step by step analysis and steps to follow in order to reach the goal. It gives the entrepreneur the objectivity to approach the business unemotionally to see what the business really is. This critical assessment of the business allows to make necessary changes or alterations if needed.

Using the critical assessment of the business, the business plan can incorporate some contingency strategies for uncertain outcomes. A business will have setbacks; these setbacks need to be accounted for to secure investors. The investors are further impressed when the positive and the negative sides have been incorporated with the use of backup plans.

The two types of business plan structures vary on a basic level and amount to almost the same fundamental concepts to help the entrepreneur create a business plan. Type one does not have a name and it is derived from comparing structurally the same business plans. This type will be called "business description plan". The second type of business plan structure is called "business model canvas".

The "business description plan" type has multiple aspects which will give a good overview for the business plan. This overview is created to define the business concepts. The aspects of the business description are in figure 3.

Type two, “business model canvas,” is fundamentally the same as the business description. However, this has a pre-planned model with nine points to fill in. There is a description on every point which explains in detail how it is supposed to be done.

When the entrepreneur has filled in this model, he/she can evaluate the business plan accordingly. If the entrepreneur is satisfied with the plan, he/she can move on to write in earnest on the business plan. Figure 1 gives an insight on how the entrepreneur could fill in the business model canvas.

## 1.2 Important features of a business plan

The current trend for business plans is reliant on research to create a fundamentally strong business plan that has good projections into the future and an analysis from reliable sources. The simple wording and formatting are not to be mistaken for simple thinking. The reasoning behind simplicity is to convey the message using easy language for the reader. According to Haag (2013) experts suggest having a business plan no more than 15 to 35 pages, excluding the financials and appendix. Twenty pages are enough for almost every business plan. If the business plan has fewer than 10 pages, it could be viewed as insubstantial. (Haag, 2013, pp. 19-20)

## 2 Business Description Plan

In the following chapters there will be an explanation of what components are in the business description plan with a description on what contents should be within each specific paragraph. These chapters are written in a structured way that should be used when using this model and creating a foundation upon the business plan.

### 2.1 Cover letter

A cover letter should make the reader to consider the business opportunity and to continue reading. Some components included in the cover letter should be: Explain why the fund has been chosen and the amount the entrepreneur is seeking. In addition, the entrepreneur should explain what type of funding has been sought. (Berry, 2008)

When writing a cover letter, the letter should be brief but precise, simple, and tailored for each investor. The potential investors reached out to should be contacted again in about a week after submitting the plan. This time frame is acceptable and should be used to ask when the investor might contact for further conversation. Inquiries area is meant to be brief and concise. Contacts will mostly be through emails and voicemail. Because of this, the entrepreneur should have a message ready that explains the nature of his/her business. (Haag, 2013, pp. 21-22)

### 2.2 Executive summary

According to Haden (2018) the executive summary maintains essential aspects of the business plan. Usually, investors will read this section first because they look for entrepreneurs who can express their vision, dreams and passion on paper in a comprehensive and coherent summary. The summary is written as a final part after the plan has been completed. In the executive summary, the entrepreneur summarizes the basic concepts of the plan and highlights the key points. The business's main concepts, purpose and objectives must be identified along with the position of the business, competitive advantage and the target or niche market of the business as well as the strategies utilized by the business marketing and sales. Growth opportunities available for the business should be utilized when discovered.



If the entrepreneur proposes financing, the summary may become more complex with additions about the structure, money required, and the purpose. Finally, the entrepreneur will describe how these funds benefit the business and how they will be repaid.

An executive summary can be reviewed by investors before or rather after to gain a brief overview of the business plan. The executive summary is normally no longer than two or three pages, even though one page is also acceptable. An effective way to make the summary is to use bullet points which makes it more appealing for the reader. An investor should be able to read the executive summary in about 5 minutes.

### 2.3 Table of contents

The table of contents is a written guide of the business plan. It helps giving a clearer overview and it assists the reader to understand and access the presented information in a concise manner without distracting the reader.

### 2.4 Business description and history

This section gives a description of the business by the entrepreneur who will be in charge. The section includes how the business will succeed and answers to these questions: legal form of the business, legal name of the business, business principles, reasons for the principles, geographical area of the business and the customers, reasons for the probability of the business or the growth of the business.

Naming a business requires searching a legal name. In doing so, the name of the business should give a clear, concise, representation of the business. This will increase the potential customers and clients that can find the business. Implications of the name should be considered and discarded if giving ill effects. According to (Haag, 2013, pp. 22-23) the company name usually provides the first introduction to the investors and prospects of the company.

## 2.5 Business structure

The entrepreneur can add historical facts to support requests for financing or acquisition objectives. The legal form should be listed (i.e., “sole proprietor, general partnership, professional partnership, limited partnership, private limited company, public limited company, cooperative, association, foundation, S corporation, C-corporation, limited liability company” (Agency, 2019). Usually, new businesses start out as a sole proprietorship or partnership. If there are structural changes, management or ownership, these are documented. Whether these changes are past or present successes, they should be recorded. (Haag, 2013, pp. 22-23)

## 2.6 Product or service description

When the entrepreneur has researched what the industry of the business is, the present perspectives and the future possibilities, the entrepreneur has the information needed for a detailed product or service description. If there are markets within the designated industry, the entrepreneur should provide reports on new products or new developments that might benefit the company or have adverse effects on the business. All relevant data needs to be reliable and make sure to footnote sources of the information where appropriate. If the entrepreneur is seeking funding, the investors want to know where and how dependable the information gathered is. They do not want to risk money on assumptions or conjectures (Berry, 2008).

In order to launch a new product, according to Duermyer (2018) the entrepreneur should have unique features in order to create value for the consumers. All unique features that provide a competitive edge must be listed. The product and services of competitors are analyzed and compared to the entrepreneur’s product. Studying the industry, region and products is essential to break into the markets available. Another consideration for the entrepreneur is the product life cycle and the seasonality of the service or product, if there are responses from partners and clients in the form of inquiries to illustrate the demand for the product and/or service.

## 2.7 Market analysis and trends

This chapter covers the market the entrepreneur wants to introduce his/her company, products and services. Essentially, it is a plan within another plan. Starting with the basic level, the entrepreneur should look at the marketing mix and decide the 4 p's (Product, price, promotion and place) for the coming years, projecting 3 years into the future. Marketing generates revenues for the company; this includes sales. (Haag, 2013, pp. 23-25)

With tangible products and/or services, pricing and value are together. Client often considers the durability, service, reliability and quality in together with the cost. Pricing strategies are presented logically and fully justified. This should give ample return on the investments and yet leave enough room for a margin of error. Promotion is the amount as well as the nature of the marketing activities for the company. They might be: online advertisements, professional publications, magazines, local newspapers, social media, or google AdWords. Place refers to the location in which the product and/or service is distributed.

Marketing research is important. Entrepreneurs should put themselves in the customers' position and determine what they need. What are the demographics (age, gender, income, family, occupation and location), what are the motivations of the customers to purchase products and/or services from the company. As an entrepreneur, the customer's interests, motives and life styles need to be considered in order to satisfy them. If the marketing strategies and the marketing plans are not supported by present and accurate data, they are useless. However, an entrepreneur needs to be vigilant for change and adjust accordingly. (Haag, 2013, pp. 23-25)

Marketing strategy is part of the business's overall game plan. An entrepreneur can survey the current market and needs to determine the location, size and the diversity of the market. This helps finding the entrepreneur's competitors and help with setting a pricing policy together with the relative share that is available of the market and useful promotional strategies. If the current state of the market is shrinking or growing helps the entrepreneur outline trends and expectations forecasting 2 years into the future. When put together, it is a competitive strength grid. According to (Berry, 2018) this is a scale that lists the major competitors and/or strategic groups which are based upon applicable assets and skills and it will give an indication on how the entrepreneur's company fits on the scale.

Strengths and weaknesses are important to be aware of in the business. The entrepreneurs should balance the efforts between the marketing of the product and the product itself. The

strengths of a business could be seen as, how the entrepreneur's product and/or service is favorably different from the competitor's in performance, reliability, quality, pricing image and awareness.

Weaknesses can also be barriers; this is up to the entrepreneur how he/she explains the problems and/or threats that will and need to be overcome. This is not just a weakness assessment; it can be seen as an opportunity. The entrepreneur needs to be rational and justify the assessments and potentially deal with them accordingly. It is crucial to include the time required, risk and estimated cost of entry. (Haag, 2013, pp. 23-25)

Target marketing is conducted to establish a market segment for a strategic suitable for the company. According to (Haag, 2013, pp. 23-25), a business must first establish a target market segment as well as a strategic fit between the entrepreneur's companies' abilities and resources to meet the basic criteria in order to compete. This is also called a "niche" market or a "target market". The entrepreneur can consider contacting a qualified market research firm in order to analyze the market. The firm works typically with 5 to 10 individuals, from the target industry. The firm uses a moderator with prepared questions. These findings can help determine if the market is viable for the entrepreneur's products and/or services and to help focus on the short and long-range marketing, promotional plans and advertising.

Market potential and positioning are important to the business. The positioning refers to the ability to influence the perception of consumers in regard of the brand or product. The objective is to establish an image or identity for a brand or product in order to make consumers perceive them in a certain way. Marketing potential is the estimate of maximum sales revenue from all suppliers of a certain product in a market during a set period. These concepts are important to realize before going into a market and to examine the market niche. If the niche is considered large enough for the entrepreneur to establish a business to sustain itself and the clients, the opportunity could be seized. The choice made is economically justified. The business should be able to reach their targeted market. According to (Haag, 2013, pp. 23-25) positioning requires the entrepreneur to consider pricing, location, testimonials and benefits. It could be that positioning is as easy as moving the business to a high consumer traffic area and concentrating on the selected marketing segment or moving away from the competitors. Depending on the price of

the business product and/or service, it can target different customers. That target can also determine which level of society the entrepreneur's customers will be. That can depend on the targeted niche.

How a product is priced can have a direct effect on the business. Pricing strategies can be complex but as a basic rule, pricing can be straightforward: The price must cover the cost of the product or service. The most effective way to lower the sales price is to lower costs. Prices set must be reflected by the dynamics of demand, costs and changes in the market. These could be for example from our competitors. The prices set must assure sales. Rather price to sell than going against a competitor. Lastly, prices should preserve the order in the market place. There are many pricing methods available: Cost-plus pricing, Demand pricing, Competitive pricing, Markup pricing.

Distribution includes the whole process of moving the products from the manufacturer to the end user. The chosen network for your business will depend entirely upon the industry from the company and the market size. The entrepreneur makes a decision after analyzing the competitors and determining the channels they are using and then deciding whether to use the same or an alternative strategy which will give the entrepreneur an advantage.

A realistic budget should be assigned for the use of advertising campaigns and promotional work. Entrepreneurs should devote a big portion of their time to running and growing their business. When the business grows, so will their personnel. The entrepreneur should always consider if they want to grow their business internationally. If so, which products and services are best to market internationally and which countries have the best prospects for the entrepreneurs business.

## 2.8 Operations

This section of the business plan will provide information on how the business operates on a daily basis. The operations can vary, depending on the type of business the entrepreneur has chosen. For example, if the entrepreneur has chosen retail, the business operations are relatively straightforward. Buy products, transport them, store them, sell the products, and deliver the products. The entrepreneur needs to make sure the operations are not too technical for readers to understand the process for it can cause problems later on.

Business operations do not need to be thoroughly detailed but rather concise. Bullet points are useful. The entrepreneur needs to keep in mind safety issues, health issues, protecting the environment, labor regulations, legal considerations, government regulations, imported or exported goods and insurance protection.

## 2.9 Technology plan

In the 21<sup>st</sup> century, technology is crucial to the business and the entrepreneur needs to determine what they require or could benefit from in their company. This could be difficult, and they can consider the use of a technology consultant to help choosing the best systems they need for their business. Some measure points for the technology are: Functions of the software, ease of use, price, safety, upgrade abilities, and usability with company software.

## 2.10 Management and organization

According to (Haag, 2013, pp. 25-26) there are four essential elements of management that investors want to see in balance from entrepreneurs: organization, planning, control and leadership. It is important to have a design on who will be in charge of certain responsibilities and tasks. These tasks and jobs need to be planned and outlined in a formal structure of the business. When the entrepreneur develops their management team, they need to determine the types of managers the other employees need. If it is a smaller business the responsibilities are shared along many individuals. Every business has unique types of personnel they need and depend on the products and/or services that are being provided.

As soon as the business is no longer the sole entrepreneur, an organizational chart has to be brought alive. Here is described what the management structure is together with detailed job duties, job descriptions and responsibilities of the person. This will also include the salaries, what incentives they can get, profit sharing and other arrangements for compensation should be listed. Salary is generally based upon the industry average wage. Being realistic and factual is important; seeing it gives direct insight into the entrepreneur which leads to the success of the business. Investors could review the management structure and planning before other sections of the business plan.

## 2.11 Social responsibility and sustainability

When constructing the business and the business plan, the entrepreneur is required to consider the triple bottom line (people, planet and profit). There are benefits to the company if these are considered and not just financially. If the company is socially responsible it will try to find a balance between making profits and bring benefits to society. This will attract employees to the business and gain visibility for the company.

## 2.12 Financial data and projections

This section accommodates financials, income and expense statements, cash flow statements, and balance sheet. As an entrepreneur, they need to understand how these documents work and are developed. If the entrepreneur is not knowledgeable about these financials, there is information to be gained through courses, workbooks, consultant and doing their own research online. It is recommended to use computerized spreadsheets in order to change the financials easier. (Haag, 2013, pp. 27-28)

For the financial investors, this part is where the heart of the business plan is. It is in the financial projections and not in the rest of the business plan. It will support and help them believe that the entrepreneurs projections will come true. (Berry, 2008)

When it comes to the business, it is needed to complete a fiscal plan of what the expectations are in the future. These expectations include: Products to be sold, materials, services needed by the company, personnel and equipment. The financial consideration will include the starting costs and the future use of funding. (Haag, 2013, pp. 27-28)

The forecasting statements of income and expense (profit and loss) are described as operating statements that are expected for the business end of a period. The balance sheet portrays what the business has and what it is owed on a date. Cash flow statement are measuring the revenues and the expenses for the business. Financial projections are usually estimated in a period of 2 years and broken up into months. After the first 2 years, they are done annually up to 5 years. (Hull, 2013)

An accountant can help setting up the numbers for the entrepreneur's business and can have high importance. They can help analyze trends, acquisitions and industry standers. This helps provide the entrepreneurs with projecting asset needs on historical information. The accountant will provide validity to the business plan for the investors and help set your numbers in a realistic way to see if they are attainable. (Haag, 2013, pp. 27-28)

Another business aspect for which accountants are valuable is if they should create financial records that are based on accrual or cash basis. Usually small businesses are recommended to do business on a cash basis which means that the income and expenses are documented when the money changes hands. Accrual is done by big companies where the transaction is documented at the time it is made. Financial statements will provide crucial information when needed to make any informed decisions as well as helping assess the condition of the business. (Haag, 2013, pp. 27-28)

### 2.13 Appendix

The appendix is part of the business plan that will reinforce the content that is written in the business plan. Here the entrepreneur can conclude and outline the business plan. Additional information that can be provided is: Important contacts, definitions of technical words, photographs, articles, copyrights or trademarks, and marketing materials.

### 2.14 Finalization

To evade problems or delays, it is smart to give the business plan to an impartial outsider to review. The outsider perspective can give great insight for the entrepreneur. There are no biases and only objective opinions. A few people where the business plan can be worked out to the full potential are: Accountant to review all the important financial statements and assets of the company as well as the personal tax consideration. Attorneys can help evaluate the legal implications the business might have or neglected.

The business plan is not the everyday report that is prepared and then just forgotten. It is what the entrepreneur will use for their daily decisions and end help them focus on tasks at hand. If the entrepreneur has no business plan their reactions are often intuitive to business conditions



and do not think properly through the appropriate alternatives available. Therefore, the entrepreneur can have difficulties making the appropriate choice which is strategically important for the business. A well-made business plan gives the entrepreneur the opportunity to maneuver efficiently and change direction if needed.

The business plan does not need to be perfect because the entrepreneur is unable to anticipate every exact situation. Endlessly going over the plan is a wasted time and will never finish the business plan, it is always a work in progress. The entrepreneur has to keep on updating the plan continuously.

### 3 Business model canvas

In the following chapter there will be an explanation of what components are in the business model canvas with a description on what contents should be within each specific paragraph. These chapters are written in a structured way that should be used when using this model and creating a foundation upon the business plan can be written.

#### 3.1 Customer segments

In case the entrepreneur decides to use the business model canvas, they are recommended to start out with the customer segment. This gives them insights in the following three segments, dimensions, composition and (problems, needs, habits and current alternatives).

Segment dimensions provide a perspective on what market the business will have. As an entrepreneur it is important to consider the markets. These markets can be either a single market or a multisided market. A multisided market tells the entrepreneur that they will have as many segments as sides. For example, Metro is such a market. They have the readers on one side and the advertisers on the other.

The composition segment is defined as the “micro” analysis of your customer basis. It looks as the individual customer types as “personas”. According to (Rampton, 2016) the entrepreneur should understand what the customer thinks, feels and sees in your services and/or product area. It is important to be able to listen to both the buyers and the users of your services and/or products.

As for the problems and needs, the entrepreneur needs to find what their business could offer to their customers. Are their target customers’ needs fulfilled, if there are opportunities they need to be considered. The production of services should solve a current need or problem for the customers. The entrepreneur should research if there are alternatives on the market for their customers to solve their needs. This prevents misconceptions in presuming that the product and/or service offered by the entrepreneur is the only solution on the market.

It is important to note that when a starting entrepreneur might spend more time on the customer Segments which is good. The business model canvas is a tool used to create a business plan and

not a strategy. Not every point in the canvas is equally important. The most impactful of the model are the customer segments and the value propositions, they should be giving the whole business plan the direction the entrepreneur is heading into.

When the entrepreneur has a business idea in their head, they should start looking to put it on paper. A good way to start is by looking to think about what type of business they want. What kind of services and or products they want to provide, and who will be interested in buying the services and products and what will make these different from others provided by competitors.

### 3.2 Value propositions

According to Team (2017) the value proposition provides information about why the customer would rather pick one product or service over another and tells what unique value the product and/or service has over their competitors. This will help the entrepreneur to define how the product and/or service is unique and why the customer will prefer your product and/or services over the current alternatives. The entrepreneur might end up with a big list, try to narrow it down to the most critical points for the business. What does your company do that makes the customer pick your over one of the competitors or alternative options.

If the entrepreneur has prioritized or misjudged the biggest value, they should apply it and do research if the market is what they thought it was. When they find out another point has more value, adjust the business and marketing to fit that point.

### 3.3 Channels

Channels are how entrepreneurs use entities to communicate to their segments but also through which entities they want to sell their products and/or services. Later on this also involves the customer service. For example, if your company focused on helping people getting jobs and improve their CV's, the company might want to advertise on LinkedIn. When they use Google AdWords, that is another channel to get attention.

It is good to keep in mind that the channels and the customer relationships will define the interface the business has for the customers. One of many mistakes entrepreneurs make is not thinking of the customers "journey". This means that every step they have to take, needs to be thought

off. For most businesses the way the business gets attention from customers varies. It does not only change the attention but also how they retain and/or supports them over a longer period of time.

### 3.4 Customer relationships

In order to know the customer relationship, it must be decided what the role of the customer relationships is in the business. It is important to know how the customer will interact with the business throughout sales and product lifecycles. The entrepreneur needs to think of the interaction with the customer. The company can have employees that have taken the role of customer service or contact person for the company. The company could outsource their customer services. The customer can reach the company through the web, direct contact, through a channel or a mix.

The entrepreneur should make sure to document everything and to review critical assumptions at this point. As mentioned before, there is a specific order on how the entrepreneur should validate the business plan. Start by looking into the segments and their relationships but most importantly, the propositions above all. This can give the entrepreneur a different customer relationship at the start then when the service is perfected. However, it can provide valuable evaluation on what direction would be best for the company.

### 3.5 Revenue streams

Revenue streams are building blocks for the business. Revenue is calculated by the earnings subtracted by the costs. Revenue calculations should be done in each customer segment. A business can be compared to the human anatomy. The customers are the heart of the business and all the revenues that are generated are linked to the arteries. Every business needs to evaluate the amount of value they provide for every customer segment. When the evaluation is accurate, the amount of value will result in a bigger revenue stream gained from an individual customer segment.

The revenue streams of a business need to be as clearly as possible be defined. Important is to narrow down the pricing and the projected lifecycles of these revenues. As an entrepreneur, it is

important to evaluate whether it is profitable or not. When calculate the cost of designing a product and producing it would out way the price of what customers are willing to pay before the lifecycle ends, it is considered bad business and the project should be cancelled. (Anastasia, 2015)

Businesses can hesitate to start a full analysis of the revenue streams if they feel unable to get the right price without creating a fully functioning prototype of the solution. There is, however, another, more effective way for a product to be priced. Understand the problems role, how big is this in the customers life and what would they be willing to pay for the problem to be solved.

### 3.6 Key activities

Key activities describe exactly what they are to your business. Key activities are crucial segments for the business and informs the entrepreneur what the business needs to deliver upon the proposition to make it work.

Depending on the form of the business that is being created, the entrepreneur can anticipate a few things. When the business is driven by production-based processes, the entrepreneur could research continuously different and better techniques to improve production. Whereas if it is service-related, for example, cyber protection, the entrepreneur could focus on maintaining a superior expertise in the customer segments. In both situations the business could consider hiring others to maintain or research improvements or the business could acquire products and/or services that are fitted. All these options are driven by the value proposition defined by the entrepreneur.

The input that the entrepreneur's business uses to create their value proposition to serve the customer segment and to deliver the finished product and/or service to the customer is called the key resources. These components are very important to have for the business model to work. Business models are usually built out of tangible and intangible resources. These assets are the bloodline of the business, in particular, they are needed to create the product from start to end. It is what distinguishes the entrepreneur's key resources from the competitors.

### 3.7 Key resources

Key resources are operational at the business end of the spectrum and helps the entrepreneur define what materials will be needed, the equipment and the types of people the business will need to employ. These aspects are what brings your value proposition to life for the entrepreneurs chosen customer segment. The aspects will help determine the minimum what the business will need to deliver to their customers.

Depending on the type of business the entrepreneur wants/has, their resources will differ as well. For example, a business focused on programming will consider human resources as the key resource. If the company is similar to a manufacturer will consider the hardware they have as their key resources. (Cowan, 2014)

According to Anastasia (2015) key resources have a direct impact on the number of key activities your company engages in. In the end, the quality of the business key resources will have an impact on the sustainability and the profitability of the business.

### 3.8 Key partnerships

Key partnerships are designed for what activities and resources are important to the business but does not work with the strategy of the company. Related fields just outside of the business type of the entrepreneur. Forming a partnership can be a solution for the business problems or needs. Consider what partnerships are needed by the business. Consider carefully what partners the entrepreneur can use and help in return.

It is recommended to map key partner to certain key activities that the entrepreneur has already chosen in the business model canvas. When an activity is key, the entrepreneur has it already as part of the business model. In doing so, it is a way to indicate which specific partner will be handling a variety of key activities for the business.

### 3.9 Cost structure

Cost structure is the final point in the business model canvas. Once the entrepreneur arrives here, they should have an understanding of how their key activities have driven their propositions and thus, their revenues. In the business plan the entrepreneur needs to write down out of what elements the cost exists in the business. Are the costs made by the business in alignment with the ruling value proposition. The cost of the business can be considered fixed costs if they return monthly the same or they can be variable if the cost changes per month. If the entrepreneur considers both business cost structures, it will grant an insight into the finances of the company.

### 3.10 Finalization

At the very end of the business model canvas the entrepreneur should evaluate these obvious and core applications: the business plan answers the business model canvas questions. the business is founded in logic and research. Optionally, additional people can read the business plan and depending on their expertise and input adjustments can be made.

The business model canvas has helped the entrepreneur figure out what the best place to start is. At this point they should also look at what the competitive environment is and how they think they can maintain or have a long-term advantage over the competition. A helpful tool to use for this problem is Michael Porter's Five Forces framework (Porter, 2008, pp. 78-93.) as well as a SWOT analysis.

#### 4 Discussion

As mentioned before, there are basically two types of business plans out there. The description business plan and the business model canvas. There are some slight variations to type 1 but they all boil down to the same structure. This is what I have used to make this universal structure.

To me, it seems that the business description plan has a good structure and elaborates well on important factors such as, investors, market research and potential future customers. However, for a first timer who is doing a startup, I feel it does not suit me personally very well in the business I want to set up.

For type two, the business model canvas I think is the structure that will give me a better setup for the company as well as give me an easy overview with the business model canvas template to see if the business is viable. It gives the opportunity to evaluate it from an earlier stage than with the business description plan. This provides me with a clearer step by step guide to follow.

When it comes to the best structure for another person, they need to decide what is best suited to their needs. However, for my solar power and battery storage business I feel that the business model canvas is the best business plan structure. This will provide a foundation for my eventual business plan.



## 5 Business plan for Solar power and battery storage

The following business plan is created as a result of the business model canvas method. However, the business plan is the ground work for a future company that is planned to be created.

### 5.1 Value Proposition

As of right now, in the Netherlands there are current laws that allow electricity consumers to feed electricity back into the grid to reduce the amount they need to pay. This can even end up by getting paid.

This is done through getting solar panels and feeding back what the customer is not using. However, there is talk about disbanding that law which is wasting the potential green energy generated. If there was a good way to retain the energy and use it on a later date, this would be interesting for many households.

Our company will deliver the answer. Solar power generated during the day can be saved by a large battery to store all excess green energy for a later use. For most households this will be a great solution because they will work during the day, when the energy is being generated and use the stored energy when they are actually at home.

The aim of the business is to give power back to the people and give them an opportunity to life “free” of the grid. The opportunity here is that people are more and more aware of how dependent they are on others. This possibility will make them self-sufficient as far as electricity comes into play.

Products and services that our company will deliver will be: Solar panels, installation, cleaning, repairs, and battery storage. Depending on the size and the number of solar panels that can be placed, they can sustain them self freely without using the power grid. There might be days that sun is too rare but the customer might have saved up enough power or that is when they can use the power grid for a little bit.

In order to keep the existing companies we plan to keep a database with our customers in order to provide helpful tips and suggestions. This can be the keep in mind maintenance checks, cleaning to improve the efficiency or if needed they can have upgrades to get a better energy conversion rate.

Competitors in the Netherlands vary. However, there do not seem to be many who also provide battery storage options as well. This will provide our company to take the lead in our area and possible we can even extend further.

Our company wants to promote green energy to the world. In doing so we want to show that people in this day and age can still be self-sufficient when it comes to producing energy without the need of people on the outside. If we store the energy provided by solar panels households can live at least a day or more from the stored energy. This promotes green energy even more.

The Netherlands has an electricity grid which needs an upgrade and they are postponing the upgrade to see what the new norm will be. We hope to make an impact by providing “green houses”. (Loon, 2018)

## 5.2 Customer Characteristics

Our customer demographics are as following. We will not differentiate according to gender because we are focused on the home owners who will reside in their home for the following 5 to 10 years in order to make a good return on their investment.

The age will be around 25 years and older. In this stage of their lives they have a high chance of a steady job and might want to start a family which means they will settle down for a longer period of time.

Their income will be a bit of a concern however, this is after the time that they bought a house which was their big investment and we want to approach all sides of the classes. From lower income to higher income. This is a one-time big investment with a slower return depending on electricity usage and how long they will stay in the same house.

Mainly we will target millennials that fit our categories because they are more conscious about the environment and strive to be greener. That attitude is important because the millennials are an upcoming market and will be an important player in future sales in our market.

The green energy movements of the millennials will be satisfied with our services because we strive to be green. We want to give power back to the people. This is important to the millennials because they want to go for independency which we deliver through solar power and battery storage off the grid.

Our company does not aim for capturing brand loyal customers seeing that we have a one-time sale. However, we do offer services and think that because they bought products at our company our name will be the first in their minds when they are in need of repairs or maintenance.

The geographic characteristics are focused for our company in the Netherlands. There is a big untapped well in the house markets which are being built at this moment. We want to try to capture a market segment by contacting real-estate agents to promote our options for solar panels when selling the houses. The Netherlands population is dense in many areas but as soon as a few houses start by procuring solar panels, they seem to pop up everywhere in the area.

Our climate in the Netherlands provides fine conditions for solar panels to be suitable and to reduce the electricity bill. There is on average 5.1 hours of sun for 300 days in the Netherlands which in turn can provide our customers with being net neutral (meaning no electricity bill). (Klimatologie, 2010)

The product will show everyone that the customer has green energy and show the neighborhood that they create green energy. This can be a great motivator for some people to buy our product and show that they care for the environment. Not only do they produce green energy they are also mostly self-sufficient in most cases. These customers can be green promoters for our company.

### 5.3 Channels

The company considers to reach the customers through these channels: Facebook, Instagram, Google AdWords, and Website. Options that were considered and discarded LinkedIn, Twitter, Email, Newspapers, and Magazines. Some reasons why we do not think these are good for our company. LinkedIn is mostly for jobs and getting a job. Twitter is dwindling and not as used in our target audience as such, not recommended for the company. Email attracts not the right attention. Newspapers are too big for us to use our area is too small and not many people read the physical papers anymore same reasoning applies to magazines.

When looking at Facebook, with the scandal of Facebook in the Netherlands, many people have disbanded or ceased using Facebook. However, our target audience has not found a good replacement yet and still spends a lot of time on Facebook. With this, our targeting can be done better and with more precision to our customers. Facebook is not only used by our focused audience it is also widely used by the elder generation which has an ever-better chance for us to put our name out there.

Instagram is equal if not used more than Facebook in the Netherlands, and thus it makes sense to use this platform to advertise. It is also very well suited for our target audience seeing that almost everyone is using this platform. If we can capture even a slight percentage it will have a huge impact on the business.

Google AdWords is a commonly used advertising tool and proven that it is highly effective. Because still many people use the webpages, this is a great tool to spread awareness in our area and make sure our name and business becomes more known to customers. We hope to draw more attention to our website to provide more information.

The company's website will be our main distribution channel seeing that we hope to draw our customers here with all the advertising. The aim is to get their attention and show them what they can save by using our products and we hope that they can align themselves with the company's goals to support the planet and in doing so, get more self-sustaining than ever.

## 5.4 Customer Relationships

Customer relationship is important for our company. Our company wants to set up a customer relationship that if the customers are interested in our products, we can set up a meeting in order to survey the layout of the house and areas that we can work with.

After meeting the customers, we can discuss with them how much we can deliver to them and how much we think they will need. All these options are up for discussion and can be changed if the customer wants it. We will tell them how much they will produce, how long they can expect in order for it to be paying off and how long they can expect to last with their current energy usage.

When the sale is done, our company will put them into our data base so that we can give check-ups if needed or provide any other services if they have need of it. There will be no special designated person in the company for customer support however, after receiving a message we can use the designated person to aid them again.

If there are new customers at hand referred to other customers we would like to support these actions and offer services to compensate them for their efforts. This is of course if we can manage first as a company.

## 5.5 Revenue Streams

Most of our revenues are transaction based. This means that we have a onetime customer which buys our solar panels and battery storage. Meaning that our biggest revenues are from the products we sell. We will provide additional services but that will not be for everyone.

There are possibilities to buy our products on an interest revenue account. Meaning that they will pay off their product on a loan basis with interest. In the end this will not be for most customers.

Installations and cleaning are secondary income sources after the biggest revenue transaction has occurred.

## 5.6 Key Activities

Our company has a few key activities that we think are the most important for our business. These activities are as follows: R&D, Installations, Post sale Support, and Evaluation. The reasons we find these important will be explained below.

R&D, as a solar power company Research and Development are important to stay into the business. Developments in this market are rapidly developing which means that if the business does not keep developing better energy cells or solar panels, there is no future for the company. This of course comes at a cost which our company cannot sustain yet. We are just developing and trying to keep our head above the water. This is a development for future purposes.

Installations are important for the company to actually realize the product for the customers and to get the revenue. Without installing the product we sale, there is no income. We do not just install the product we will also explain to the customer how to take care of them.

When all is set and done, there is always post sale support. Seeing that we are a company that is still starting up, we need all the help we can get. If something isn't working well, we want to know. If our services are not what customers want, we want feedback on it so we can improve our services. We hope to achieve great things and hope that the customer will share in our achievement.

Before we install all the solar panels and battery(s) we want to see how good their place is for green energy. This will give the customer an insight in how much they can expect to generate, how much they use during the days, and how much they will need in order to live off the grid. If it is not a smart investment, we will let the customer know.

## 5.7 Key Resources

The resources needed at our company come in a variety of shapes and forms. Mainly, solar panels, batteries, human capital, materials and a customer database. These are what we think the most important recourses available to our company.

Solar panels are of course irreplaceable and will be the main recourse we need. When we get the solar panels we will test them and see how they perform and check for damages. Once they are approved, they are ready for retail. We will get the solar panels ready without need to assemble them and only need to get materials to install them on the roofs.

These materials will be ordered from a different company and we will make sure that they are well fitted together. These materials will include all the different parts needed for the installation and the set up for the solar panels.

Batteries are our unique selling point because we do not just want to sell the customers green energy we want to give them electricity freedom. These batteries will provide the customers with also energy in case of emergencies. There are no special parts required for these batteries and they can be installed as they are delivered.

Our human capital aspect comes into play in 2 ways. We want our team to install the solar panels and the batteries at home for the customers. Provide the customers with a good overview of what they can expect of our solar panels and the expected life cycle. The other aspect comes in the form of assembly and research and development. We want our team to be efficient and fast when assembling the parts at home so we teach them how to do it. When it comes to the research and development we to give them some freedom to look into how we can make them more efficient or if the market has better offers for our company.

The customer database will include all the names of client we will have and had in order to make sure we can contact them again or if there are needs or complaints we know who they are and who went to install the solar panels and batteries at their place. This will help us grow as a business.

## 5.8 Key partners

It was somewhat difficult/challenging to determine the key partners, but we have done it. We think our key partners are as follows: Investors, suppliers, transportation, real estate agents, ....

Now to elaborate on them our company wants to stress that there are potentially more partners but we are still looking for them.

Firstly, investors. Here we already have a potential investor which is the Kamer van Koophandel. This is an institute which wants to help Dutch entrepreneurs to get started and get ready for the future. If the company will have any questions or difficulties, we can ask them for help or if they know someone that can help.

Further we want to go online and see if we can get funding from GoFundMe or Kickstarter. These might not pay off but it is always worth a shot. In case we do get funding from crowdfunding websites, we want to sort out or own products instead of relying only on suppliers.

Suppliers are found and their name is SunPal. It is a Chinese company that produces Solar panels and deliver to Europe. They are eligible for sale in Europe and are made according to the European law so that they can be sold in Europe. There is an import fee between 2 to 6% when buying from this supplier. The transportation fee from this company is negotiable. Up until then this is the information gotten from the company.

Transportation will be arranged from the SunPal company delivered to us. Same goes for the materials. From there we will have our own company car and we will rent trailers for the cars to store and transport our goods in. These trailers will be rented from Boedelbak. They are also open for negotiations about prices and longer lasting relationships.

Real estate agents can be a potential big partner for our company. This can be used for them as a commission and for us to make an extra sale when people buy their houses. The real estate agents can advise home buyers to take solar panels because of the green energy and then mention our name.



## 5.9 Cost Structure

The following information has been constructed using the internet as a source. However, seeing that the prices change, information becomes outdated. Especially with solar panels, this is accounted for the period of 01/01/2019 till 01/03/2019. The sources of the information are such as Amazon, Alibaba and Dutch provides.

With our cost structure or our financial statements, we want to start off with general information. A family with 2 kids in the Netherlands uses about 4.600 kWh a year. This means that they use on a daily basis 12.60 kWh. However, in the Netherlands there is sun on average about 300 days in a year. If we divide 4.600 by 300 we come to an amount we should produce in order to cut out the loss of no sun. Amounting to 15.33 kWh a day. The average sun time is about 5.1 hour a day. (Klimatologie, 2010)

Per hour we should generate about 3006 Watt and calculating in a slight loss of the solar panels we result in around 10 panels per household to generate enough.

The cost per solar panel for a 350 Watt is 119\$ each which translates to 105, 37 euro's. The minimum order is 10 panels which means 1053, 70 euro's. If we calculate an import tax of 5% in there, we result in too a cost of 1106.39 per house for solar panels alone.

When we start to include batteries a unit costs 800\$ which means 708, 39 euro's. The minimum order is 5 units and if we include the import tax as well, we amount to 3719.05 euro's to start with. These battery storages can store up to 20 kWh in order to have sufficient capacity to last more than a day if needed.

The cost of materials needed to install the solar panels amount to 50 euro's bought locally and there is no minimum purchase. This will in total amount to 1900.20. This is calculated for the price that it will cost alone in materials to provide 1 house with solar panels.

Let us assume our company will spend monthly about a 1000 euro's on marketing. We hope to capture by spending a 1000 euro's about 14 customers a month due to our marketing coverage. Our budget is still limited due to our start up.

Our company is looking to have 2 people working at the company. If we look at the minimum wage and we pay a little more we will pay about 2000 a month each. Resulting in a cost of 4000 euros. Installation will take about 5 hours which means  $12.5 * 5 * 2 = 125$  euros just to cover the wage.

The transportation costs are assumed to be around 1000 euros a month, which includes the delivery of the solar panels, batteries, materials and the renting of a trailer.

As a total cost per month, we will plan  $1000 + 4000 + 1000 + (1900.20 * 14) = 32\ 602.80$  euro's.

If we were to sell the solar panels and batteries for a total price of 2750 we would make a rough profit of about 400 euro's per sale. This could be with either including or excluding the installation costs.

#### 5.9.1 SWOT – core competency

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>- Small team</li> <li>- Unique selling point</li> <li>- Green energy movement</li> <li>- Relatable with the customers</li> <li>- Personal contact with customers</li> </ul>	<p><b>Weakness</b></p> <ul style="list-style-type: none"> <li>- Unknown</li> <li>- Niche market</li> <li>- Difficult to make a name</li> <li>- Hardly any marketing to reach potential customers</li> <li>- Small team</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Fresh constructed buildings</li> <li>- Independency of the electricity grid</li> <li>- Exporting to Germany</li> <li>- Electricity companies may stop repaying the feedback into the power grid</li> <li>- Continuous improvements in solar panels and batteries</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>- Seeming too small to be viable</li> <li>- Competitors</li> <li>- New in the business</li> <li>- Continuous improvements on Solar Panels and batteries</li> </ul>

## Strengths

A small team is a strength for the company. All know each other well and work with each other daily. This improves our team work and the understanding of our company. If there are any issues, they can be talked over directly.

Our company offers people the chance to take back their control when it comes to electricity. We hope to make sure that everyone can sustain them self's in an environmentally friendly way. This is different from how other solar panel companies offer their products and services.

Taxation on energy in the Netherlands is high and has risen in order for people to use less energy and to be more aware of energy waste. If the customer uses our services, such taxations and rules do not apply to you.

The target audience for our company is the same age as the entrepreneur. Thus, after experiencing the independency, we can relate our experience and give pointers our customers.

Our company is still small which means that if we contact our customers, there will be no people in between to make contact or problems distorted. This means that if the customers have questions or complaints, the owner will be in direct contact to make sure that doesn't happen anymore and solve the initial issue.

## Weaknesses

Unknown refers to be a company that does not have a piece of the market segment yet. Because the company is unknown, customers might be disinclined to work with us which is a reasonable seeing that there might not be a guarantee to take back the solar panels if the company does not exist in a year or so.

The market of solar panels and batteries is a niche market because not everyone is eager to look into the long run. They might not have the funds to buy our products.

The market is not saturated but there are many big companies with a good reputation. This can make it difficult for a small company to compete in the market.

As discussed previously, big companies have the biggest market percentage. Thus to have an impact on the market, our business needs to have a bigger marketing budget. However, as a starting company, there is no big budget so it is difficult to reach potential customers.

The small team is a strength and a weakness. The problem is that if there are too many customers, our company cannot help them all at once to increase our turnover and might lose customers because our company cannot give them what they want in their time frame.

### Opportunities

There is an untapped market which is the newly constructed buildings. Possibly we could contact the contractor and see if we can arrange a deal with solar panels and batteries included in the initial build of the building.

Our services offer independency of the electricity grid that the power companies already have provided. This is our basic model and is our selling point for the company. The need to be self-sufficient is growing.

As a possible market for our company we could consider expanding our business to Germany. The company is located in Nijmegen which is near the border of Germany. Because of that reason, driving into Germany is not bad and our people speak German. This is another benefit for us to expand into Germany. Overall, Germany is similar to the Netherlands and this could benefit us greatly if considered carefully.

Right now there is no certainty that the electrical companies will stop paying for the solar energy the consumer will feed back into the grid. However, once this will happen or not, this will put the company in a better position. If it does happen, there will be a bigger market segment for our company to utilize. If it does not happen, the green energy enthusiasts will still want our services.

Continuous improvements in solar panels and batteries are an opportunity for our company to improve our solar energy. This is done by keeping up on the market and the research. If we tap

into improvements our company can stand our more plus increase the energy generated from the sun.

### Threats

As mentioned previously, the company can be perceived to be too small to do business with. There is no guarantee we can replace their solar panels or batteries if our company does not exist anymore.

Competitors in this market are dangerous because our product are basically a sale to a person every 10 years or less. Thus, if the competition takes one or your customers, that means a big potential loss to your company.

Continuous improvements in solar panels and batteries are also a threat to our company. Our company might not be able to keep up with the improvements made in the field of green energy which will put our company at a disadvantage.

### 5.9.2 PESTLE

<p>Political</p> <ul style="list-style-type: none"><li>- Green energy discussion</li><li>- Electricity use tax</li></ul>	<p>Economic</p> <ul style="list-style-type: none"><li>- Flow back is paid</li><li>- Electric cars</li></ul>
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<p>Social</p> <ul style="list-style-type: none"> <li>- Green energy</li> <li>- Possible for other countries</li> </ul>	<p>Technological</p> <ul style="list-style-type: none"> <li>- Full independency</li> </ul>
<p>Environmental</p> <ul style="list-style-type: none"> <li>- CO<sup>2</sup> lowered</li> </ul>	<p>Legal</p> <ul style="list-style-type: none"> <li>- Safe for houses and helps provide with emergency backup</li> </ul>

#### Political

There is a political discussion going on about the green energy and how much we can deliver. At the moment, in the Netherlands there is already a lot of green energy being produced. The production however is not enough. We want to be able to switch entirely to green energy but there is just too little being produced.

If we were to sustain ourselves with solar panels and batteries, there will be an upwards slur in green energy and there will be less need for pollution because a big part of our population sustains itself through green energy.

There is also the concern for electricity tax. If people use more electricity, their tax for electricity is going up. This is done because many people carelessly spend and use energy. The thought here is to reduce the redundant use of electricity. When our customers are self-sustaining, there is no need for the tax because our customers produce it them self.

## Economical

The flow back is referring to the feedback of solar energy into the electricity net. This is an economic stimulus that exists today. However, there are arguments about if it is sustainable and if the electrical company should pay for it.

Those are good questions and thus our product offers a solution to the problem that solar panel users may encounter in the future. This also benefits our sustainability.

When it comes to electric cars, they need battery and they need to be charged. The example just came forwards because now this might be a way to charge the car of the future with solar panels. Just plug in the battery into the solar panel net and your car is good to go.

## Social

There are current problems with the electricity network and we are coming up to max capacity. People are still planning to use electricity then networks can handle. If we want to find a good alternative, we follow the green energy trend.

## Technological

Technology has come a very long way. From when solar panels were first invented till now. Their sustainability has become so viable that is it considered as a possible solution to the energy problem. We can get rid of the old ways of mining coals and stoke those to produce electricity.

Now we can have our house full of solar panels and store those is batteries. This will create independency and there is always a possibility to rely back on the power grid if our customers use more then they produce.

## Environmental

With the introduction of solar energy and atomic energy, there will be a significant reduction in CO<sup>2</sup> emissions from bad energy producers. This will hopefully stabilize global warming and help the world get back on track.

The environment is a growing worldwide concern. If the Netherlands can have a solution that will work for here, maybe we can spread our solution to more countries and in doing so, possibly solve a problem that is concerning everyone.

## Legal

There are no patent violations when using purchased solar panels and batteries. It is also legal for people to be independent as long as the government is aware of the living area.



## 6 References

- Agency, N. E. (2019). *Legal structures of business: overview*. Haettu 27. 01 2019 osoitteesta Business.gov.nl: <https://business.gov.nl/starting-your-business/choosing-a-business-structure/legal-business-structures-an-overview/>
- Anastasia. (18. 03 2015). *Key Resources Building Block in Business Model Canvas*. Haettu 01. 02 2019 osoitteesta Cleverism: <https://www.cleverism.com/key-resources-building-block-in-business-model-canvas/>
- Anastasia. (24. 03 2015). *Revenue Streams in Business Model Canvas*. Haettu 01. 02 2019 osoitteesta Cleverism: <https://www.cleverism.com/revenue-streams-in-business-model-canvas/>
- Berry, T. (13. 03 2008). *Elements of a Business Plan*. Haettu 24. 01 2019 osoitteesta Entrepreneur: <https://www.entrepreneur.com/article/38308>
- Competition, T. U. (2017). *Business model canvas template*. Noudettu osoitteesta <http://u.osu.edu/lacqua1hseportfolio/files/2015/08/Business-Model-Canvas-Template-Humbles-Lindsay-R.-17i0n2j.docx>
- Cowan, A. (2014). *The 20 Minute Business Plan: Business Model Canvas Made Easy*. Haettu 26. 01 2019 osoitteesta Alexandercowan: [https://www.alexandercowan.com/business-model-canvas-templates/#Step\\_6\\_of\\_10\\_Key\\_Activities](https://www.alexandercowan.com/business-model-canvas-templates/#Step_6_of_10_Key_Activities)
- Duermyer, R. (04. 11 2018). *Business Plan - Products or Services Section*. Haettu 01. 02 2019 osoitteesta thebalancesmb: <https://www.thebalancesmb.com/business-plan-format-1794224>
- Haag, A. B. (2013). Writing a Successful Business Plan. *Workplace Health & Safety*, 61(1), 19-29.
- Haden, J. (20. 06 2018). *How to Write the Perfect Business Plan: A Comprehensive Guide*. Haettu 26. 01 2019 osoitteesta Inc: <https://www.inc.com/jeff-haden/how-to-write-perfect-business-plan-a-comprehensive-guide.html>
- Hull, P. (21. 02 2013). *10 Essential Business Plan Components*. Haettu 25. 01 2019 osoitteesta Forbes: <https://www.forbes.com/sites/patrickhull/2013/02/21/10-essential-business-plan-components/#284f011f5bfa>
- Klimatologie, N. (01. 03 2010). *Average Amount of Sunshine a Year in the Netherlands*. Haettu 05. 02 2019 osoitteesta currentresult: <https://www.currentresults.com/Weather/Netherlands/sunshine-annual-average.php>
- Loon, W. v. (20. 09 2018). *Volop zonnestroom, maar de kabel is te dun*. Haettu 19. 02 2019 osoitteesta NRC: <https://www.nrc.nl/nieuws/2018/09/20/volop-zonnestroom-maar-de-kabel-is-te-dun-a1617181>
- Ongkiehong, O. (15. 09 2006). *Electricity grids*. (SenterNovem EOS) Haettu 03. 03 2019 osoitteesta rvo: <https://www.rvo.nl/sites/default/files/bijlagen/Status%20Report%20Electricity%20grids%20EOS.pdf>
- Osterwalder, A. (2015). *BUSINESS MODEL CANVAS*. Noudettu osoitteesta Tuzzit: [https://www.tuzzit.com/en/canvas/business\\_model\\_canvas](https://www.tuzzit.com/en/canvas/business_model_canvas)
- Porter, M. E. (01 2008). *The Five Competitive Forces That Shape Strategy*. Haettu 16. 04 2019 osoitteesta Harverd business review: <https://hbr.org/2008/01/the-five-competitive-forces-that-shape-strategy>
- Rampton, J. (26. 08 2016). *7 Steps to a Perfectly Written Business Plan*. Haettu 23. 01 2019 osoitteesta Entrepreneur Europe: <https://www.entrepreneur.com/article/281416>
- Team, N. (05. 06 1017). *Business Model Canvas: Creating a Value Proposition*. Haettu 02. 02 2019 osoitteesta medium: <https://medium.com/nextgen-food-for-thought/business-model-canvas-creating-a-value-proposition-d999ee28b3cc>

Vaughan, A.;& Gibbs, S. (14. 01 2019). *Ion age: why the future will be battery powered*. Haettu 24. 02 2019 osoitteesta theguardian:  
<https://www.theguardian.com/news/2019/jan/14/on-the-charge-why-batteries-are-the-future-of-clean-energy>

## 7 Figures

Team or Company Name: <i>Energy Sun Friendly</i>		Date: MM/DD/YY		<input checked="" type="checkbox"/> Primary Canvas <input type="checkbox"/> Alternative
<p><b>Key Partners</b> Who are our Key Partners? Who are our Key Suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p>Investors, Suppliers, Vendors, Distributors, Transportation, Manufactures</p>	<p><b>Key Activities</b> What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?</p> <p>R&amp;D, Installations, Post sale support, Construction,</p>	<p><b>Value Proposition</b> What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p>We offer storage of green energy from your own solar panels. Solar panels including efficient storage. Installation and checkups, solar panel cleaning/maintenance.</p>	<p><b>Customer Relationships</b> What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p>Clean affordable energy, Long term relationship</p>	<p><b>Customer Segments</b> For whom are we creating value? Who are our most important customers?</p> <p>Home owners, Companies, people with big spaces or roofs, system integrators, Future orientated people.</p>
<p><b>Key Resources</b> What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p>Batteries, Solar panels, Materials, Costumer database</p>		<p><b>Channels</b> Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p>Website, social networks, knowledge centers</p>		
<p><b>Cost Structure</b> What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key</p> <p>0.7\$ per 1.5 Watt Install materials 17.10 Euro per 50 parts Average house 12 panels 15 kWh 1000 Euro Transport, installation, Marketing and materials.</p>		<p><b>Revenue Streams</b> For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p>Willing to pay around 1.55 Euro per Watt, Getting extra value from being able to be off the grid, Energy neutral, no extra cost most of the year if not whole year</p>		

Balau: The UC Berkeley Startup Competition

Figure 1 Business plan for Solar Energy <http://u.osu.edu/lacqua1hseportfolio/files/2015/08/Business-Model-Canvas-Template-Humbles-Lindsay-R.-17i0n2j.docx> (Competition, 2017)

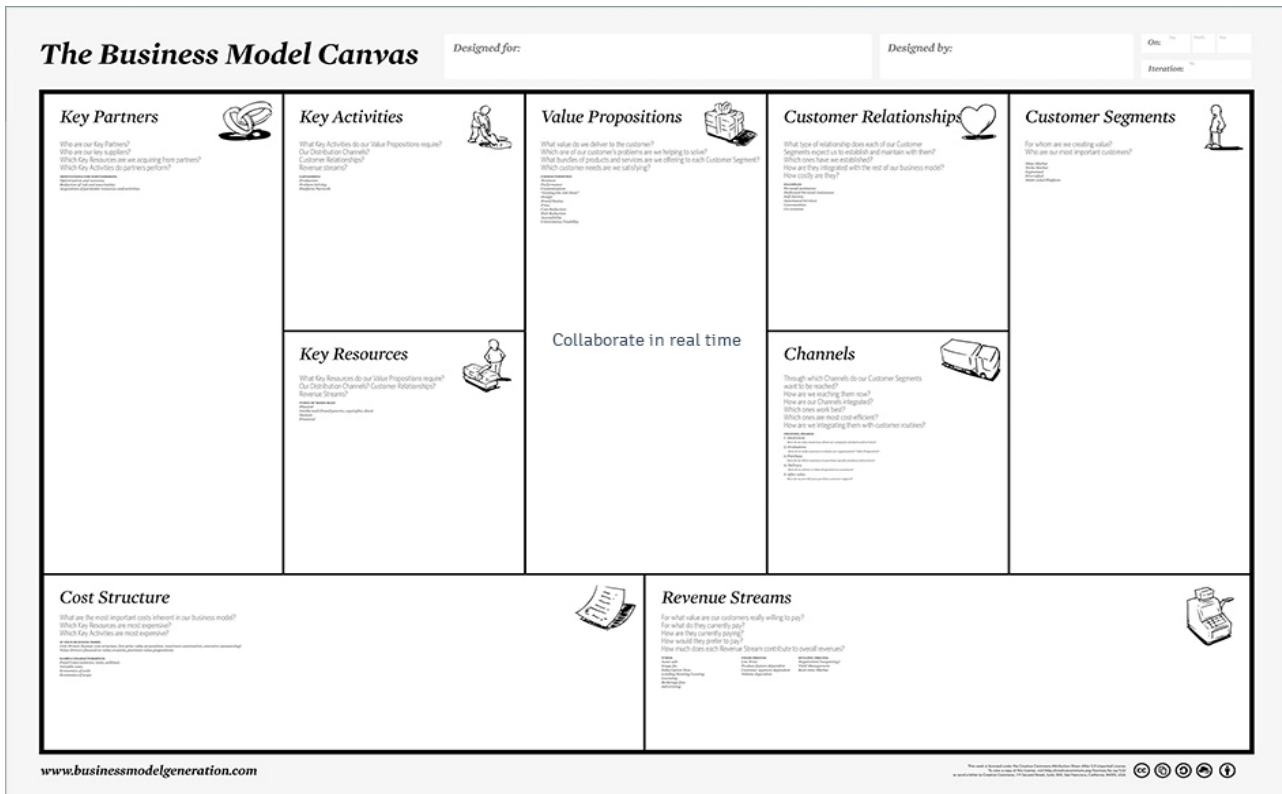


Figure 2 source [https://www.tuzzit.com/en/canvas/business\\_model\\_canvas](https://www.tuzzit.com/en/canvas/business_model_canvas) (Osterwalder, 2015)

Sidebar 1
<b>Business Plan Components</b>
Cover letter
Executive summary
Table of contents
Business description and history
Business structure
Product or service description
Market analysis and trends
Operations
Technology plan
Management and organization
Social responsibility and sustainability
Development, milestones, and exit plan
Financial data
Appendix

Figure 3 (Haag, 2013, pp. 21)