Inspired by Nature – Climate Venture 2.0 Application

6/30/2016

The Innovation

9. What innovative product, service, or business model are you developing? How is this a new or different model?

We have developed both new hardware and a new third party solar leasing style, both of which we believe are required for ingress into the urban solar market. Our hardware is a tiered mounting system used to place multiple solar panels in the footprint of only one panel mounted conventionally. By mounting vertically, we are able to capture the solar resource from spaces where hardware cannot be placed. This is important because increasing the number of panels increases the profitability of each installation, but most rooftops in cities are limited due to architecture or ordinances.

Our leasing model is similar to what is used in cell tower contracts. Instead of altering the homeowner's energy bill as many conventional third party solar providers do, we will pay them rent by the square foot of roof space used. They then enter a PPA with us at the current market rate, so they see no change in their energy bill but we get paid back as they pay their utilities; any excess power can be sold wholesale. Although the profitability for the homeowner and the company are comparable in both cases we have been getting good feedback about the increased predictability for the homeowner. One interviewee said that she would love the savings solar could provide but the unpredictability could throw off her tight budget and be the difference between making it that month or going to the food bank. The rental system would also make solar accessible to people with low energy bills. Another interviewee was an elderly woman with an energy bill less than $10 a month. Altering her rate with a solar PPA would not be worth her time, but rent she could use.

We have also seen interest in and are discussing a program where the homeowner would get a lump sum upon signing the lease instead of rent. This is viable because it is comparable to a bank loan but with a lower default rate since homeowners are more likely to pay their utility bill than their loan debt. We believe this is a novel program and would like to investigate it more during our pilot program.

(2057)

10. Why hasn't this approach been done before?

The hardware has not been made yet because it is only required in urban and limited space applications and there has been little ingress into these markets so far. In the city you must mount vertically to take advantage of sun hitting spaces where mounting another panels is not allowed or not possible. In rural and suburban installations, it is much easier just to mount another panel to take advantage of space. It also should be noted that our system is originally designed for flat roof homes, which are much more prevalent in the urban environment.

We believe a comparable leasing program has not been designed because the urban demographic is very hard to design for. Current major solar providers are doing extremely well marketing to early adopters and suburban homeowners since the market is so large. At this time there is no driving force for their expansion into the urban market comparable to the increased difficulty of such a project.

(949)

Implementation

11. Who are your customers? Why will they pay? (1000)

Our customers are the homeowners, and the utility company if any extra power is produced and must be sold wholesale. The utility company is incentivized to purchase our power to help them meet their demand and to increase the renewable energy in their portfolio. The homeowner will join because our program offers them effectively money for nothing. They have no out of pocket expense and all they must do to pay us is continue to pay their utility bill as they did before. As mentioned earlier, default rates on utility payments are relatively low.

(550)

12. Who are your competitors? What differentiates you? (1000)

Our largest competitors are other third party solar companies, most notably SolarCity and Sunrun. We are different because we are an urban centered solar company. We have designed a solar leasing system for the urban community specifically but it is viable for any homeowner. Our competitors on the other hand have created a program that is useful for many but is incompatible with the urban market. Because the market of owner occupied homes is so large there isn't enough pressure for them to alter their leasing style in order to expand into the urban market.

www.solarcity.com/

www.sunrun.com/

(595)

13. What traction have you achieved to date?

Prototype built.

14. Tell us about who has invested in your team or Company.

We received a $5,000 grant through the Technology Entrepreneurship Center on the UIUC campus to continue prototyping hardware over the summer.

(142)

15. Provide an outline of the share ownership, monies raised (if any).

We plan to issue 5M shares to the founders and keep 5M unissued for investments and an option pool. The founder breakdown is 40% to the CEO Eric, 20% to each of the rest of the founders, Keegan, Joe, and Brayden.

Currently we have raised $5,000 through the University of Illinois at Urbana-Champaign Research Park AWARE Grant.

Impact

16. In 50 words or less, what significant unmet social need is your company addressing?

Urban households, which are disproportionately lower income and minorities, have no reasonable solar option currently. By developing a solar program that is compatible with this demographic we will help lower the financial burden for these families while making the city green.

(41 words)

17. How can your social objectives be sustained in a for-profit model?

It has already been seen that third party solar options are profitable and sustainable. The social impact of these programs is lacking though because their target demographic is not in need. We believe that a similar program focused on the overlooked urban environment will have a much greater impact while remaining profitable. Our hardware has little effect on the capital cost of an installation and the structure of our program should have comparable profit margins to other third party solar options.

(506)

18. How will this approach impact climate change?

Increased implementation of photovoltaics will directly decrease reliance on fossil fuels for electricity. Increased usage in cities, where energy is consumed the most, will decrease wear on the grid and be initial steps towards a smart grid.

It should also be noted that we have reason to believe our program will decrease the rebound effect; the phenomena of increased usage as a result of increased efficiency or savings. By keeping the electricity bill the same and providing rent, we hope to create a disconnect between the two. This may decrease the likelihood that homeowners will reinvest their rent into increased energy usage. We would like to investigate this more in our pilot program.

(696)

City Engagement

19. Do you have experience working in the public sector?

Joe and Eric both have experience working at the University of Illinois at Urbana-Champaign. Although indirect, both Brayden and Keegan have been exposed to the public sector since both parents of both founders work in the public sector.

(237)

20. Please indicate whether you would like to be considered for a pilot project with 100 Risilient Cities Network.

We would like to be considered.

21. Please propose and initial pilot project. Include the following: 1) Description of pilot: scope, location/city, duration etc. 2) City's Role: What department, what non-financial resources, etc. 3) Other parties involved: role & non-financial resources 4) Amount of funding sought 5) Other financial sources 6) Outcomes: benefits to company & benefits to city

Our proposed pilot program will consist of 5 homes in Philadelphia, PA. It will be 6 – 12 months long depending on results, with expansion during this time if possible. Philly was chosen because of its favorable solar policy, large number of flat roof homes, good geographic location, and manageable size. Two of our team members are from this area, Baltimore, MD and Wilmington, DE, so it also helps that we have some local connections too. The location, similar to the program size, is negotiable though depending on funding offers we receive.

Our pilot program will not require major interaction with the city because of its small size. The most notable work with the city will be confirming ordinances for our hardware. We do expect to work with the city later in our business though. One of our proposed marketing schemes involves the development of abandoned lots in the city into urban green spaces with solar as their centerpiece. This program would involve close work with the city but will be evaluated after our pilot program. Other notable parties involved in the pilot program include the local energy provider, likely PECO, a lawyer to draft the PPA and wholesale contract, a local solar installer, and a certified inspector.

We are looking for at least $100,000 to fund our pilot program, though a larger amount would allow us to expand the program size which is desired. Currently we are seeking funding through accelerators, angel investors, and grants; feel free to contact the team if you would like an update on our funding situation at any time.

Our desired outcome for the pilot program is to evaluate the feasibility and capital cost of a full scale program. The program will help us to build connections within the industry and with city officials which will help for future growth. We also hope to evaluate our aforementioned rebound effect claim and the feasibility of the cash in advance program during the pilot. On the small side our pilot will bring work to Philly. On a large scale we hope that the pilot can be a jumping off point for a full scale program in Philly

and eventually other cities. A program that will hopefully help revitalize the area by putting money in peoples pocket, similar to Y Combinator's Basic income research in Oakland.

(2268)

22. Provide bios for all of the founders and links to work you have done before.

Brayden:

Brayden has a background in Engineering Physics and minor in Computer Science. He held two internships at Wolfram Research Inc. that helped to spark his passion for technology and working on big problems. He has been interested in the startup culture for a while and worked for Entrecorps, an organization at the University of Illinois that helps startups through consultation work. He has had a history of leadership from being president for the state of Illinois for student council to working on the student advisory board working to improve the physics department on campus. He also enjoys learning new things and spends a lot of time learning new skills or reading books on new topics.

https://entrecorps.illinois.edu/

http://www.github.com/bray94

Eric:

I am a Baltimore native, I attended Morgan State University, located in east baltimore, for my BS in electrical engineering. Although I started with a research background in Microwave Engineering, I had a strong desire to work with technology that could help people in my struggling city ie Solar Tech. I received my MS in Material Science and Engineering from University of Illinois - Urbana Champaign. I am currently a PhD Candidate at the Materials Science and Engineering department at the University of Illinois - Urbana Champaign. I specialized my graduate work on semiconductor engineering which gave me a stronger knowledge base on how solar tech works. After taking classes in sustainability and starting this startup in 2015 I have become much more familiar with the other forces at work in the Solar Tech space ie policy, safety regulations, and business modeling. Since I started as a graduate student I've also been published three times feel free to check them out below:

- pubs.acs.org/doi/abs/10.1021/acsnano
- www.nature.com/ncomms/2014/141112/ncomms6332/abs/ncomms6332.html
- scitation.aip.org/content/aip/journal/jap/117/13/10.1063/1.4916537

Joe:

My name is Joseph E. Davis and I am a Chicago native and a recent graduate majoring in broadcast journalism from the University of Illinois at Urbana-Champaign. I enjoy the process of gathering information and displaying it in a creative comprehensible way using video, photos, graphics and

writing. I interned with a startup company in Chicago the summer of my junior year and ever since I've had the desire to help build a company that improves people lives.

Keegan:

My name is Keegan Lane. I was raised in Wilmington, DE and moved out to Illinois to pursue an education in Chemical Engineering. While at school I tried to diversify what I was learning as much as possible. I made sure to take part in classes and projects outside of my major and this is where I found my interest in business, finance, and law. I've always been driven to use my life to make a change so it made sense to jump in with all I had when I saw the opportunity to work on a project with other social entrepreneurs. The following are links to projects I have worked on.

http://www.cleanstove.org/

Kumar V, Whittenberg JJ, Lane K, Verma S, Patel H, Kenis PJA. Design and characterization of a scaled-up millifluidic grove mixer for nanoparticle synthesis. *In Preparation*.

23. Please attach a resume of up to 3 participants.

http://www.ibnhomes.com/climate_ventures_group_resume.pdf

24. Please explain why the leadership of your team is qualified to undertake your project

Our team is qualified to take on this project because we are all capable social entrepreneurs. Our technical background is strong with experience in electrical engineering, computer science, physics, material science, finance, and chemical engineering. We are able to address the cultural and legal aspects of urban solar also thanks to experience in law and journalism. As mentioned before, it also helps that half our team is from the area and has local connections in Philly. To support where our team may lack we have brought on an advisor, Johnathan Coates. With over 20 years in construction management, including solar projects, he has offered his help as an operations advisor; reference provided upon request.

(719)

25. Which members of your team will attend the program?

All members will attend.

26. How far you in developing your business? Please assign dates to the following milestones if applicable.

Idea – January 2016

Prototype – June 2016

Beta – September 2016

Commercial Product – May 2016

27. Please attach an Executive Summary.

Our executive summary can be found at http://www.ibnhomes.com/climate_ventures_executive_summary.pdf