



**“GATEWAY TO THE INTELLIGENT HOME”**

**KOOLBRIDGE SOLAR EXECUTIVE SUMMARY**  
2Q2017

**1. Product / Service:**

The principle business of Koolbridge Solar Inc. is to design, develop and sell innovative electrical products that allow solar energy to be integrated into homes more efficiently and economically, to reduce energy bills, to provide greater supply reliability, and to provide clean energy for mankind. We will accomplish this with our first product, The Smart Load Center™.

Our Smart Load Center will:

- Provide solutions to increase in-home energy efficiencies;
- Provide solutions to decrease homeowner’s energy costs;
- Provide solutions that increase the homeowner’s ROI;
- Provide solutions that complete the communications chain from utility to “smart grid” to “smart home” to “smart appliance”.

Our Smart Load Center is a solar and utility energy breaker box that can *automatically select the use of utility power or solar-derived power independently for each of a number of load circuits based on smart algorithms*. The automatic selections of power use a microcontroller to dynamically switch each breaker circuit based on:

- Availability of utility and/or solar power; Preset user priorities; Battery charge status; Time of day; Instantaneous consumption; Historical consumption patterns, and Weather forecasts.

## Smart Load Center Printed Circuit Board

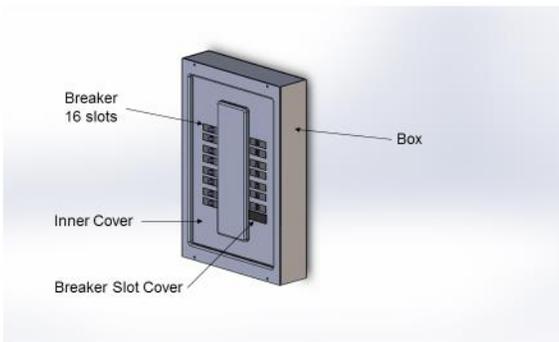
- 4 for initial testing
- 20+ for prototype run
- Design complete
- Fabrication complete
- Population underway

3

## Smart Load Center Embedded Software

- Basic operating system in place
  - Task priorities
  - Task scheduling
- User interface under development
  - LEDs for load source
  - LCD display for status
  - Communication port for configuration and testing
- Electrical power interface under development
  - Monitor 16 breaker currents
  - Monitor 2 power currents

## Door Asm. Removed

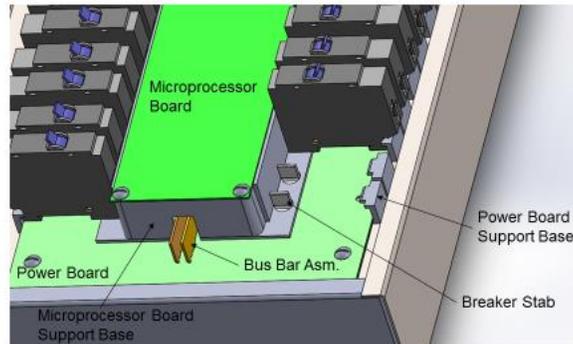
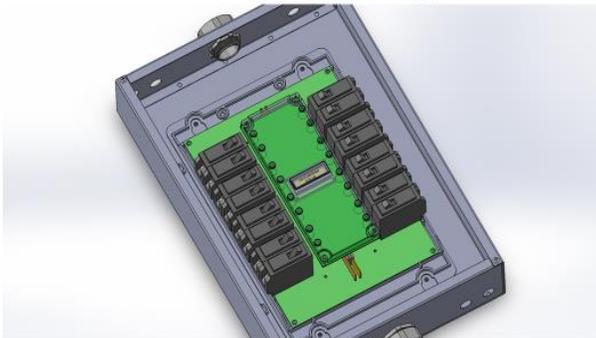


## 100+ Amp Load Center Prototype



- 16 Slots
- 20 Amp Max
- LED's (Solar or Grid)
- LCD

## Electrical Module





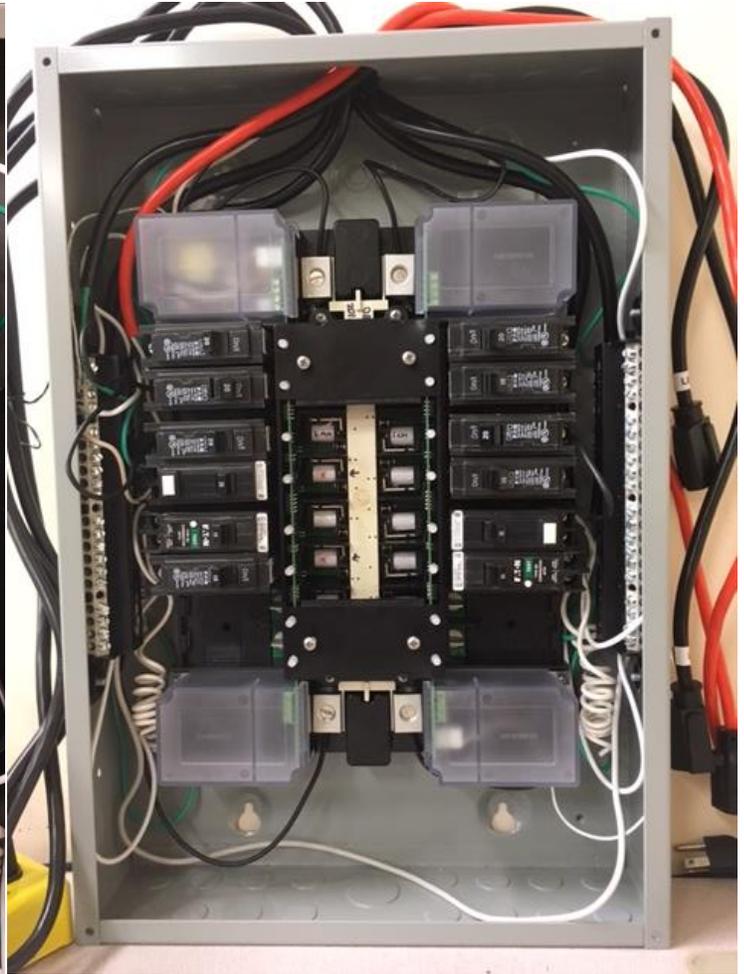
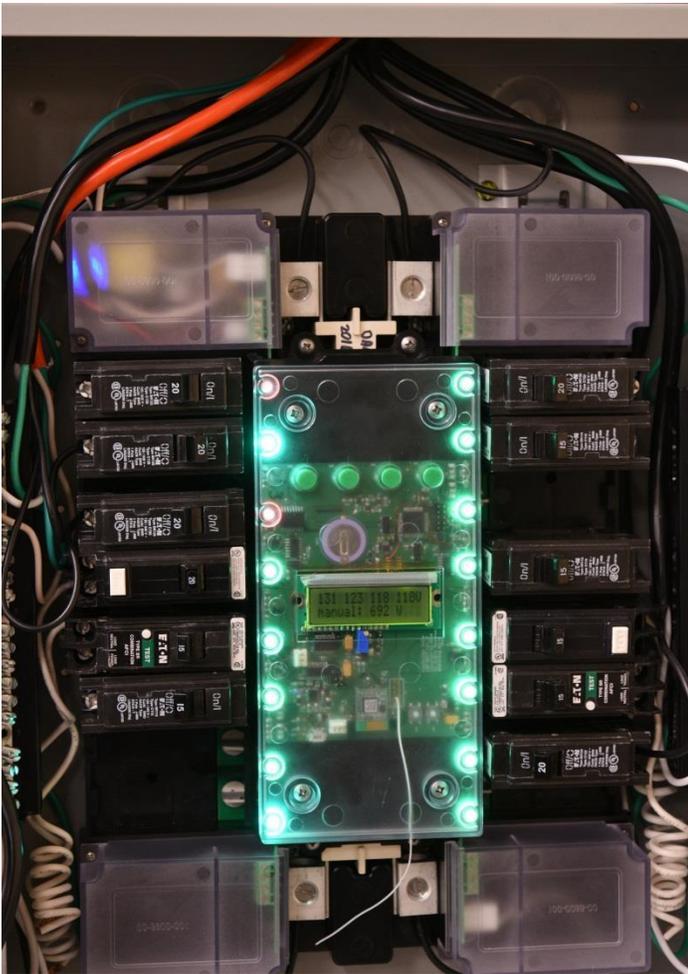
Brains of the Smart Load Center



Product #2—DC to AC 98% Efficient Smart Inverter



Smart Load Center—Outside



Smart Load Center Prototype Testing December, 2016



SLC demonstration at Board of Advisor's Meeting 3/2/17



Delivery of SLC to UL engineers on 2/15/17



Delivery of SLC to UL engineers on 2/15/17

## 2. Market Opportunity:

Koolbridge Solar, Inc.'s Smart Load Center is scalable and, in time, will have a positive impact on two distinct market segments: Residential and Commercial, both in the US and International.

The company's immediate focus is on penetrating the U.S. residential segment of the market. This robust market is growing at a fast pace and is perfectly positioned for the benefits of implementing solar technology.

Our research uncovered:

- 90,000+ new homes per month are being built in the United States / 1,080,000 per year.
- HUD forecasts new home growth in the United States will average 100,000 per month during this decade.
- 15% of new homeowners are installing solar systems in their new homes.
- 85% (918,000) new non-solar homes can become "Solar Ready" and have access to energy utilization data.
- US retrofit market: 132,000,000 existing homes in the United States are potential customers.

Our initial product, the Smart Load Center, is an innovative, timely product that maximizes the use of free solar energy when the sun is shining, i.e. "self-consumption", and only pulls power from the grid when solar is not available. It manages both solar and utility based energy in a complimentary fashion but also works with battery, wind or generator. We either outright own or own the exclusive rights to a total of 22 patents or applications: Six granted US patents, thirteen additional US patents-pending, and three international filings around six inventions. Our international patents

include Smart Appliance Communication and Addressable Electrical Power Outlets. Our patent filings teach the use of a microcontroller inside the Smart Load Center that uses algorithms to keep the electricity flowing seamlessly, especially during grid outages, and maximizes the cost savings for the consumer. The Smart Load Center manages the homeowner's energy usage down to the individual circuit breakers, and will provide information to the homeowner as to where and when energy is being utilized throughout the home.

In the future, the Smart Load Center will know where your smart appliances are located and will communicate with them. When there is ample solar energy available, the Smart Load Center will begin the process of starting the dishwasher or clothes dryer. If solar energy is not available, and the home is utilizing power from the grid, the Smart Load Center will not start any appliance until the grid power is at its absolute lowest cost of the day, potentially when the energy is free from the sun's rays. This feature not only saves money for the homeowner, but helps the utility by not turning on appliances with heavy electrical draw during high demand periods. The Smart Load Center uses today's technology to increase efficiencies and decrease energy costs in one of the fastest growing segments of the market – Solar. We believe that we've eliminated any reasons for the homeowner not to pursue a solar solution.

### **3. Strategy / Operations:**

Koolbridge Solar plans to deploy two main strategies to introduce our technology into the marketplace:

1. Form alliances with leading residential breaker box manufacturers that are already involved in our targeted space. Manufacturers of non-smart, residential breaker boxes, like Schneider-Electric, Eaton Corporation, General Electric, Westinghouse, Siemens, etc. will benefit tremendously by adding the Koolbridge Solar Smart Load Center to their product portfolio. Those strategic relationships could include engineering support, financing, manufacturing, and distribution and NDA's are in place with several potential strategic partners.
2. Work a second initiative in parallel with the first, which calls for Koolbridge to establish strategic relationships with companies offering solutions to the residential market, i.e. Solar Installers, although not specifically in the load center space. The Smart Load Center would be *pulled through* as part of a value-added solution package. This initiative differs from the first in that Koolbridge would work with a 3<sup>rd</sup> party manufacturing company to provide the Smart Load Center. We are currently in discussions with third party contract manufacturers to accomplish this initiative.

### The Rollout – Timeline

- 2Q17 – UL Approval anticipated. Delivery of first pre-production units and have them placed within proof of concept opportunities with solar installers and other strategic beta test sites.
- 3Q17 – Initial production units available and sold into the market.
- 4Q17 and beyond – Full scale production and sales into targeted markets.

### **4. Company History, Milestones & Risks:**

History: Stephen Burnett was approached by his long-time friend, Dr. Paul W. Dent, about building a company around Paul's two filed "Smart Solar" patent applications. They agreed to move forward together and filed the Articles of Incorporation with the State of North Carolina on July 26, 2013. The two of them brought in four other business thinkers who filled critical gaps in the corporate structure and made them all Co-Founders: Larry Zirbel for Software Engineering, Phil Johnston for Legal and Business, Curt Thornton for Mechanical Engineering, and Dr. Jeff SooHoo for Electrical and Software Engineering. All co-founders have other business and strategic proficiencies that go above and beyond their core competencies that are extremely valuable to the company.

Other executives were asked to assist, consult, advise, and otherwise help the company fill strategic positions as the company gained traction: Bill Griffin, initially a Business Advisor, moved into the role of President and COO earlier in 2016. In early 2017, Mr. Griffin moved into the role of President and CEO. Ed Green of Coats and Bennett in Cary, NC handles all Intellectual Property matters. Ken Gilbert leads us in any and all Professional Engineering services needed. Bob Gosselin manages all tradeshow and marketing activities. Bob Belts manages all CFO responsibilities. Chris Tridico manages all Product Development and became Chief Technology Officer in March, 2017. Koolbridge has five full-time employees as of 2Q17. Paul Dent receives a royalty payment on the patent portfolio giving Koolbridge an exclusive license and outright ownership in certain instances, but will continue to work for the company for free. Koolbridge has approximately 25 consultants and employees, total, as of 2Q17.

### **Milestones: 22 Patents or Applications:**

- Six US Patents Granted:
  - 1) Potential Arc Fault Detection & Suppression – Granted November, 2014
  - 2) Solar Energy Conversion and Utilization System—Granted January, 2015
  - 3) Combiner Having Arc Fault Detection and Suppression—Granted July, 2015
  - 4) Solid State Phase-Splitting Transformer – Granted December, 2016
  - 5) Smart Appliance Intercommunication—Granted February, 2017
  - 6) Smart Load Center for Distribution of Power from Two Sources—Granted February, 2017
  
- Twelve Additional US Patent Applications Pending:
  - 7) Addressable Electrical Power Outlets—Filed February, 2015
  - 8) Inter Coupling of Microinverters—Filed June, 2015
  - 9) Improved Residential Electrical Energy Installation—Filed June, 2015
  - 10) Remote-Controlled Photovoltaic String Combiner—Filed June, 2015
  - 11) Inverter Inrush Current Limiting—Filed July, 2015
  - 12) Rapid De-Energization of DC Conductors with a Power Source at Both Ends—Filed June, 2016
  - 13) Adaptive Load Sharing System—Filed July, 2016
  - 14) Smart Load Center Panel – Filed September, 2016
  - 15) Neutral Routing for Communal Inverter Systems – Filed November, 2016
  - 16) Dual-Power Electrical Outlets – Filed December, 2016
  - 17) High-Current Toroidal Transformer Construction – Filed December, 2016
  - 18) Smart Appliances Intercommunication (Continuation #1) – Filed February, 2017
  
- Four International Patent Applications Pending around 5 inventions:
  - 19) Rotary Solar Converter—Filed August, 2015
  - 20) Smart Appliance Intercommunication and Addressable Electrical Power Outlets – Filed January, 2016
  - 21) Inter Coupling of Microinverters -- Filed March, 2016
  - 22) Solid State Phase Splitting Transformer—Filed May, 2016
  
- Several Additional Patent Applications are in the Pipeline.

### **Milestones: Agreements / Mutual NDA's**

- Solar City [www.solarcity.com](http://www.solarcity.com) -- NDA
- Schneider Electric [www.schneider-electric.com](http://www.schneider-electric.com) – NDA
- ABB [www.abb.com](http://www.abb.com) – NDA
- Electric Power Research Institute (EPRI) [www.epri.com](http://www.epri.com) – NDA

- Future Renewable Electric Energy Distribution & Management Systems Center (FREEDM) [www.freedm.ncsu.edu](http://www.freedm.ncsu.edu) —NDA
- Grove Battery Manufacturing, LLC – NDA
- North Carolina Clean Technology Energy Center (NCCTEC) Former North Carolina Solar Center [www.nccleantech.ncsu.edu](http://www.nccleantech.ncsu.edu) – Five Year Memorandum of Agreement
- Anuva Innovations [www.anuvainnovations.com](http://www.anuvainnovations.com) – NDA
- Flextronics [www.flextronics.com](http://www.flextronics.com) - NDA
- Specialized Investments Group, LLC, i.e. “IQ Energy” – NDA & Memorandum of Understanding
- Parks Livestock, LLC [www.parkslivestock.com](http://www.parkslivestock.com) – Memorandum of Agreement
- Nixon Power Services [www.nixonpower.com](http://www.nixonpower.com) —NDA
- BriteStreet Energy [www.britestreet.com](http://www.britestreet.com) -- NDA
- Anuva Manufacturing Services -- NDA

#### Milestones: Other

- 2014-- Asked to join the Research Triangle CleanTech Cluster
- 2015—Successfully Completed Private Placement Memorandum (PPM) Raise of \$500,000
- 2015-- Engaged former SEC Attorney, Michael Williams, [www.gopublicdirect.com](http://www.gopublicdirect.com) for Direct Public Offering of Koolbridge Solar.
- 2015-- Engaged SEC Public Company Accounting Oversight Board (PCAOB) CPA Auditing Firm of Daszkal Bolton in anticipation of Direct Public Offering. Even though the board has voted on and engaged SEC counsel and PCOAB auditing, there can be no guaranty that KBS will become a publicly traded company.
- 2015—WINNER – Coastal Entrepreneur of the Year Award – Manufacturing & Distribution
- 2015—Top Ten Finalist by NC Technology Association for “Top Ten Start-Ups to Watch in North Carolina” and one of Five Finalists for “Energy & Environment”
- 2015-- Discussions held with Duke Energy, Strata Solar, ABB, Schneider Electric, GE Renewables
- 2016—Successfully Completed Private Placement Raises of \$1,875,000.
- 2Q16—Filed S-1 Direct Public Offering (DPO) with the SEC to become publicly traded
- 3Q16--- Entered 3<sup>rd</sup> engagement with UL on the Smart Load Center
- 3Q16 – 19<sup>th</sup> patent filed
- 3Q16—Exhibited at Solar Power International, Las Vegas
- 4Q16 – Filed Amendment to S-1 Filing for DPO with the SEC
- 4Q16 – 20<sup>th</sup>, 21<sup>st</sup> and 22<sup>nd</sup> patent applications filed
- 1Q17 – 5<sup>th</sup> & 6<sup>th</sup> patents granted including the FOUNDATIONAL PATENT ON THE SMART LOAD CENTER
- 1Q17 – Smart Load Centers were formally submitted to UL

#### **5. Entrepreneurs & Management Team**

- J. Stephen Burnett- Co-Founder & Chairman - Responsible for IP licensing, execution of Business Plan including roll-out of all products, advancing strategic alliances, fundraising initiatives, get Koolbridge acquired or publicly traded via a Direct Public Offering, and general day to day business activities; Background includes IP Licensing, former business owner in Raleigh, and Registered Investment Advisor for 10 years in Raleigh/Durham.
- Dr. Paul W. Dent- Founder, Chief Scientist / Director- Responsible for Smart Solar patent portfolio / inventions, prototype development to UL approval, assist engineering teams including mechanical, electrical, & software; Background includes 20 years as Chief Scientist at Ericsson Mobile in RTP, #1 inventor in the world for wireless communications, 350+ granted US patents.
- Bill Griffin- President & CEO- Leads all strategic alliance initiatives and develop other sales channels, work with the team to execute the Business Plan, help the CEO in all other initiatives; Background includes Partner with

Cornerstone Business Advisors, 45 years of seasoned Business experience, former officer of Comp-USA where he built the government division from the back of a napkin to \$150,000,000 in revenues over 5 years.

- Bob Belts – Chief Financial Officer – Bob handles the full scope CFO responsibilities with his well-balanced skills, multiple industry experiences, and success in fund raising and cash management. Bob has extensive experience working with executive management teams, investors, industry analysts, and other business constituents from automotive manufacturing services, nuclear and renewable energy and recycling. Bob has an MBA from Michigan State University.
- Curt Thornton- Co-Founder, Sr. Engineering Specialist - Responsible for mechanical designs- Design and integrate the mechanical engineering of our Smart Load Center and lead the mechanical engineering development of all future products to UL approval; Background includes 12 years at Ericsson and Sony Ericsson as Technical Lead Engineer. Specialties include Machine design, product development, & mechanical design.
- Dr. Jeffrey SooHoo- Co-Founder, Electrical & Software Engineer- Design and integrate the communication abilities of the microcontroller of the Smart Load Center as the energy management hub of the home and lead the software/electrical development of all future products to UL approval; Background includes electrical design, mechanics, electronics, software and firmware.
- Larry Zirbel- Co-Founder, Director- Design and integrate advanced software engineering into the Smart Load Center for Smart Appliance integration. Background includes R&D at IBM's T.J. Watson's Laboratory, owner of Software Techniques which now manages 20 million parcels of real estate and was sold to Thompson Reuters.
- J. Phillips L. Johnston- Co-Founder, Vice-Chairman, Chief Legal Counsel, Director- Keeps the company protected legally and will help the company get publicly traded via a Direct Public Offering; Background includes CEO of two publicly traded companies and Director of five public companies. Business author, Founder of NC Technology Trade Assn.
- Robert "Bob" Gosselin- VP of Marketing – Advises on all strategic marketing initiatives. Mission is a "cradle-to-grave" perspective on varied marketing applications. Bob has developed marketing programs for Fortune 500 OEM's, Distributors, VARs and integrators. He was responsible for helping launch numerous biotech, medical, scientific, pharmaceutical, laboratory instrument and technology companies domestically and internationally.
- Chris Tridico—Chief Technology Officer—Managed 200 engineers and technologists with Accenture and responsible for \$1.7B annual revenue. Advises and manages all Koolbridge Product Development activities until each product successfully receives UL approval.
- Dr. Jaap Haartsen – Technology Advisor -- Dr. Haartsen led the invention of Bluetooth, a wireless communications technology for the connection of devices over short distances which is in over 10 billion devices. He is internationally regarded as the *Father of Bluetooth*. Dr. Haartsen has been inducted into the National Inventors Hall of Fame alongside Thomas Edison, the Wright Brothers, and Henry Ford for his invention of Bluetooth. He most recently was inducted into the Consumer Technology Association Hall of Fame alongside Steve Jobs, Founder of Apple Computers. He has joined Koolbridge on a part-time basis as our "Technology Advisor". Dr. Haartsen was hired by our Founder, Dr. Paul Dent, at Ericsson Research in Research Triangle Park, NC in 1991 where the two worked on wireless technology. Dr. Haartsen is working on patents and the design of an indoor communication and control system between the Koolbridge Smart Load Center and residential appliances.