



RESEARCH TRIANGLE  
CLEANTECH CLUSTER™

» Transformation Through Collaboration



# MEMBER

## STORIES OF INNOVATION

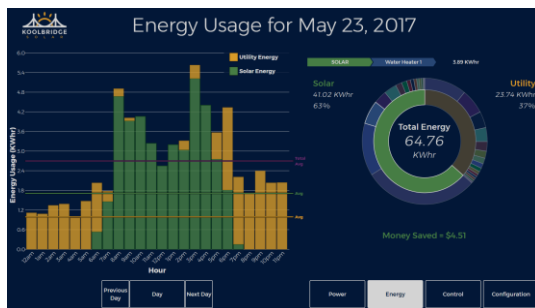
SMART  
GRID



## CHALLENGE

### KEEPING UP WITH SOLAR

As solar PV installations increase across the United States, integration issues are becoming more prevalent. There is a limited amount of “smart” technology available to distribute the solar-generated, electrical energy throughout a household. Today’s breaker boxes and electrical panels distribute energy from the grid with little consideration for solar or battery backup power. The integration intelligence among multiple incoming energy sources is limited. Since many aspects of electrical infrastructure in the United States are outdated, alternative energy resources pose a series of challenges. One of those being when the grid goes down, power produced from solar energy is no longer available.



## SOLUTION

### SMARTER ENERGY MANAGEMENT

Koolbridge Solar develops products that allow solar energy to be integrated more efficiently and economically. Their Smart Load Center™ allows customers to use both solar and utility-based energy in a complementary fashion. The product is a solar and utility energy breaker box or panel box that can automatically select the use of electrical power from the utility grid, solar panels, batteries, generator, and even wind power. The automatic selection of power sources uses a microcontroller to activate the dynamic switching of each breaker circuit based on availability of utility and solar power. It also provides preset user priorities, battery charge status, time-of-use management, instantaneous consumption, and historical consumption patterns. Planned enhancements even include the ability to adjust consumption based on current and predicted weather conditions.

The Smart Load Center is designed to maximize the use of solar energy when the sun is shining and only pulls power from the electrical power grid when solar energy, either direct or from stored backup battery systems, is not available or when rates are at their lowest. It manages energy usage down to the individual circuit breaker level and provides data on where and when energy is being utilized.

The Smart Load Center allows homeowners to have more control over their energy usage and capitalize on the solar energy that is being generated. It also helps to address issues around load management to match energy production to energy demand. Other capabilities include integrated tracking of energy utilization independently for each circuit, coordination of loads to minimize peaks enabling more efficient utilization of available solar energy, and selectively connecting circuits based on power priorities during extended power outages.

# IMPACT

## ENERGY USED EFFICIENTLY AND WISELY

With the introduction of the Smart Load Center, Koolbridge Solar hopes that homeowners across the United States will be able to have more control in order to use their energy efficiently. There are over 125,000 new solar PV systems being installed on residential homes each year. These homeowners now have the ability to avoid integration issues and know that they are getting the highest return for their investment. "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," said Stephen Burnett, chairman of Koolbridge Solar. "We believe that we've eliminated any reasons for the homeowner to not pursue a solar solution."

# WHO WE ARE

## ABOUT RTCC

The Research Triangle Cleantech Cluster (RTCC) is an initiative of business, government, academic and nonprofit leaders focused on accelerating the growth of the Research Triangle Region's cleantech economy.

We promote collaboration and partnership which drives innovation and sector growth and creates competitive advantage for both companies and the region by concentrating resources on a single vision and plan to advance company growth and attract cleantech investment.

RTCC works to ensure the region is recognized for its leadership in research, innovation and growth in the clean technology sector by leading a global marketing program, promoting cleantech business growth, and by engaging and convening cluster companies and partners.



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## ABOUT KOOLBRIDGE SOLAR

Koolbridge Solar, Inc. designs, develops and sells innovative electrical products that allow solar energy to be integrated into homes more efficiently and cost-effectively, to help reduce energy bills, and to provide greater electrical supply reliability.

