

POWER GENERATION

Hybrid Grid Bank 2017

“GENERATE STORE
AND USE POWER”

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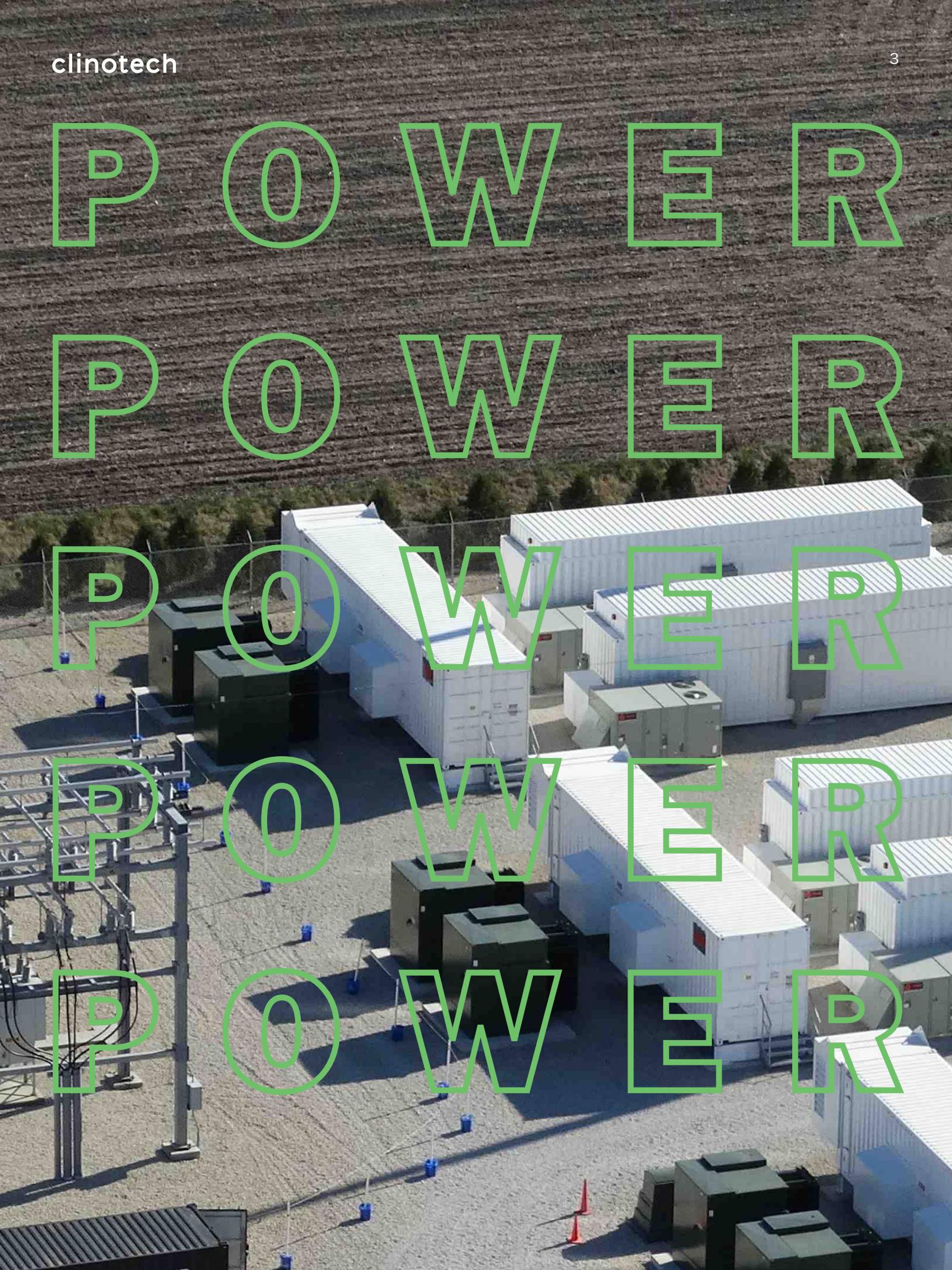
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Storage + Generation

The cost of solar energy falls below traditional fossil generation as technology advances. We believe it is necessary to look at both storage and generation as equally important components.

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Reviewing Supply & Demand

As we plan to create a more complete energy storage system. We recommend a more robust 24/7 strategy going forward. Missing from our initial scope was the utilization of renewable forms of energy to alleviate grid dependencies. Building this additional capacity will greatly add to savings down the line, and build a more reliable service.



Supply Solution: Solar Energy

Additional solar generation plans will provide clean, and affordable power for the long term. This will help realize a plan to reduce expensive diesel and utility costs, thus reducing interruptions and blackouts. Solar energy provides electricity

when the grid power is not available. This system can also be circuited to discharge during peak demands to further add to savings.



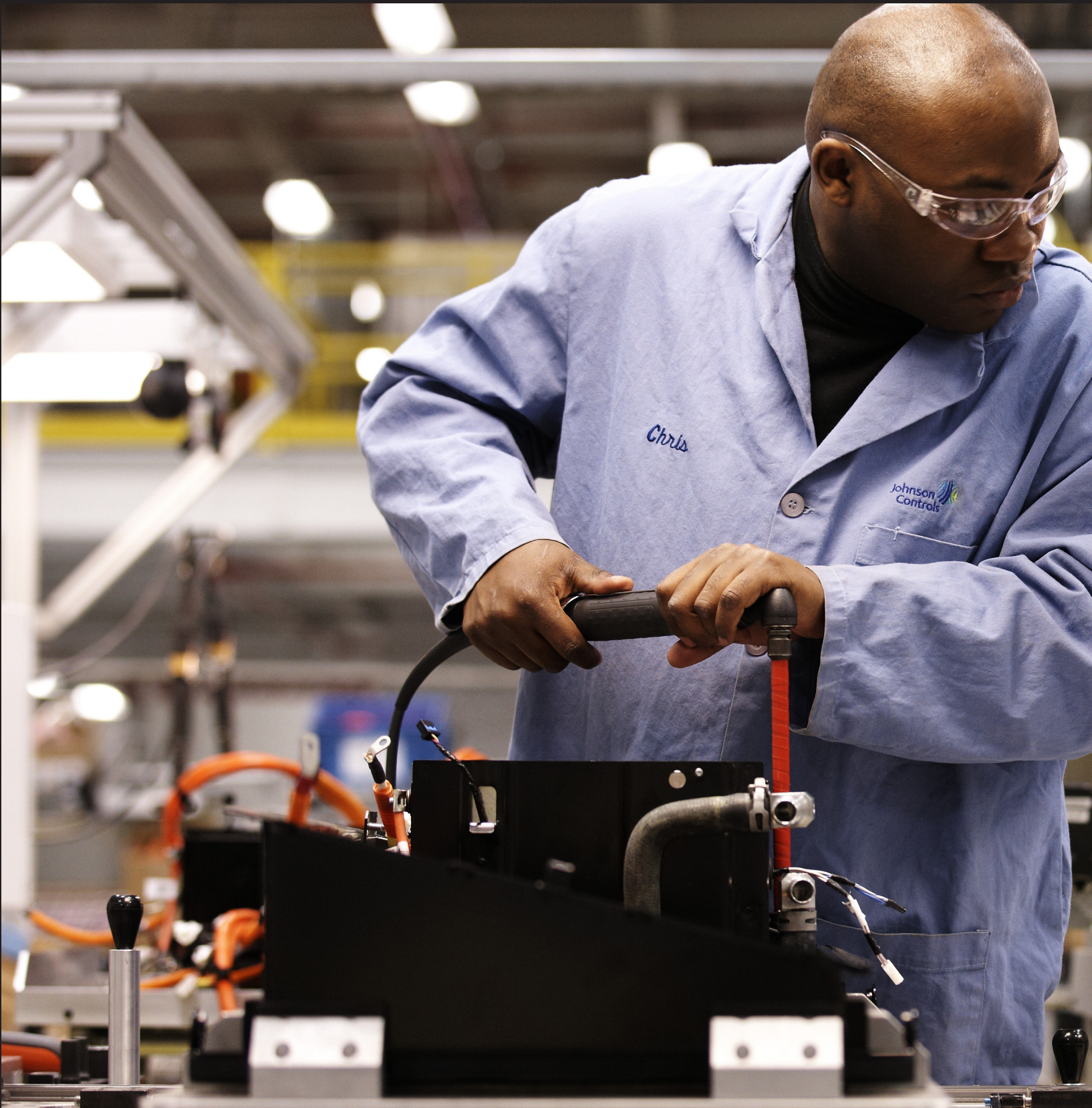
Demand Solution: Grid Bank

The Lithium Ion batteries are still the core of our project. But with the addition of solar generation we need to factor more seamless system that can hybridize between the full utility periods. The Grid Bank when combined with solar will

shave peak energy usage, lower demand charges and has the potential to generate revenue streams. But in order for it to do this, it needs a more refined technical components and structuring (explained in page 9).

Only **Storage** is not Enough

“Our battery component needs flexibility across the entire electricity supply chain.”





Software and Hardware

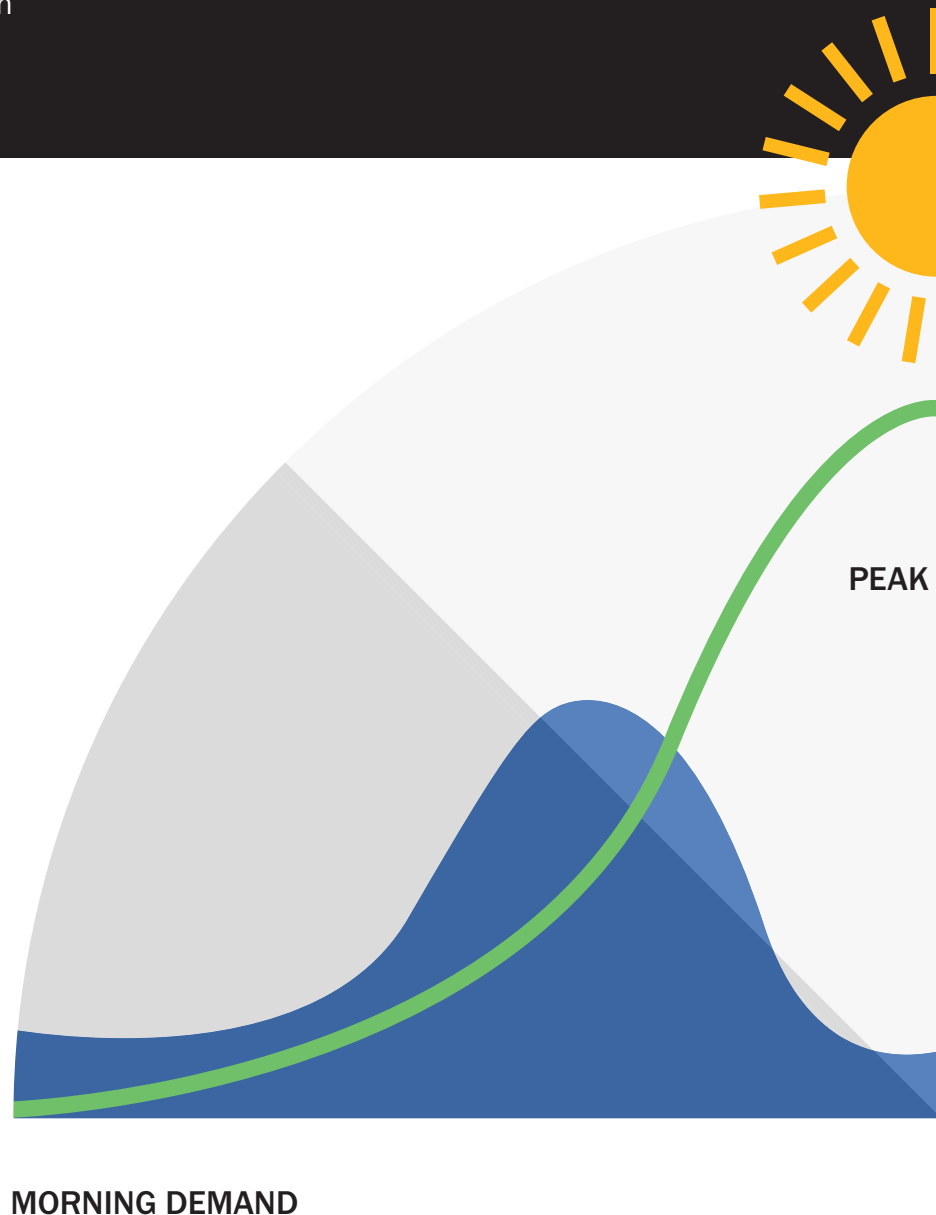
We need batteries that are safe and have a long life characteristic. But these batteries are not effective if the grid does not have consistent charging power. Building an off the grid capacity requires a battery system with a refined load shifting mechanism. These mechanisms ensure that the battery will work with a local power generation source, in addition to the grid (load shifting explained in page 9).

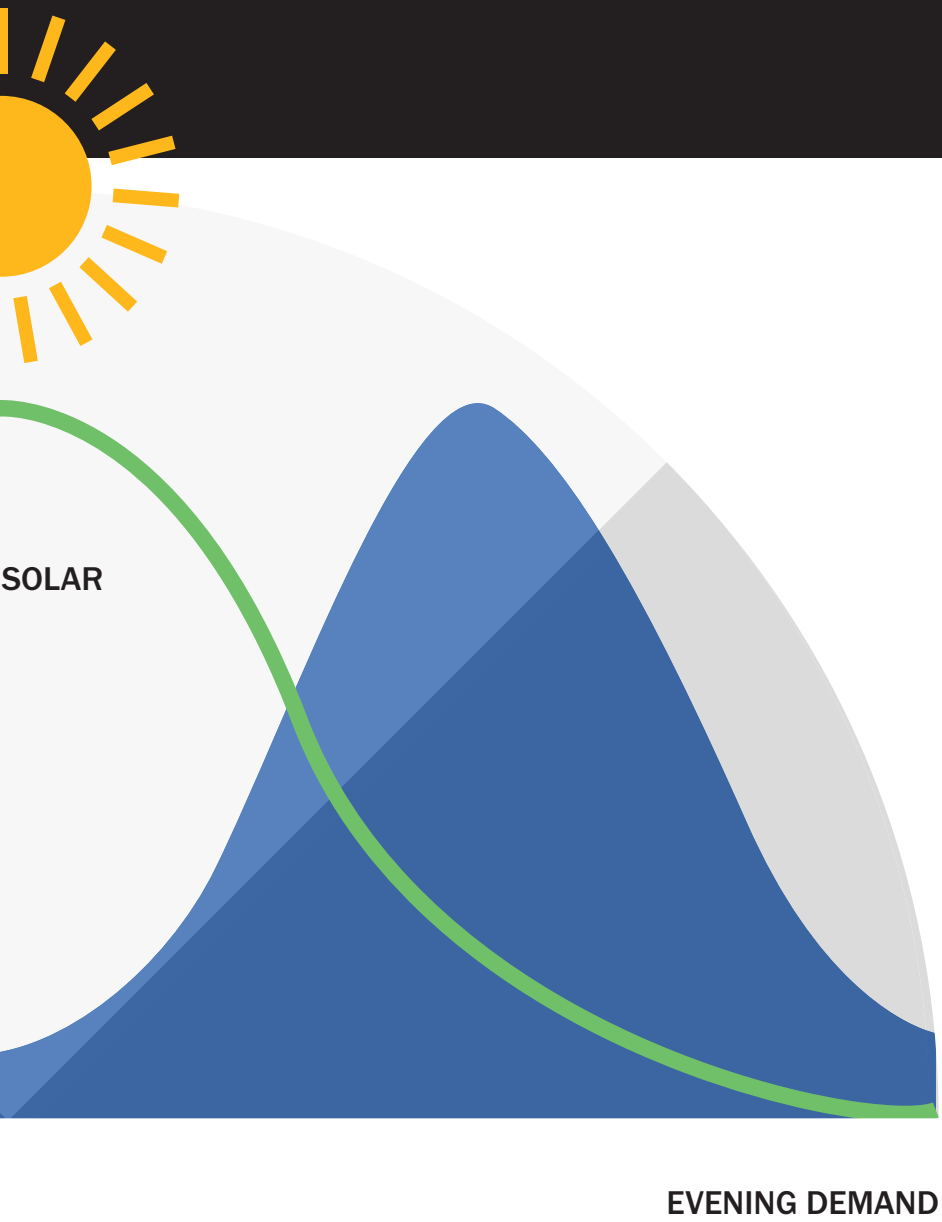
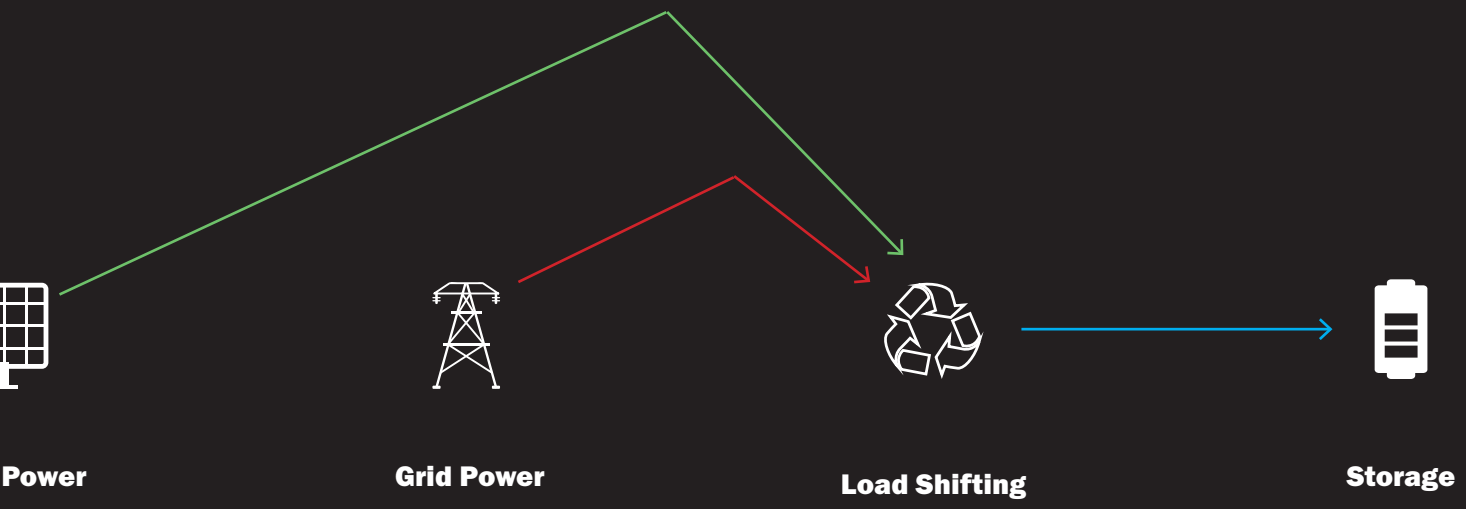
Load Shifting Mechanisms

Our recommendation for the Grid Bank, is to use an integrated circuit system that can work precisely with the both storage and generation uses. The system needs to lower electricity costs by consuming less during peak hours and more during off peak hours (when it's cheaper and more ecologically friendly to generate it). This intricate utilization of on and off grid input and usage output needs to be programmed properly. Without an efficient load shifting mechanism in place the Grid Bank will not be optimized. This can cause more problems for a 247 power output, as incompatibility creates inefficiencies.



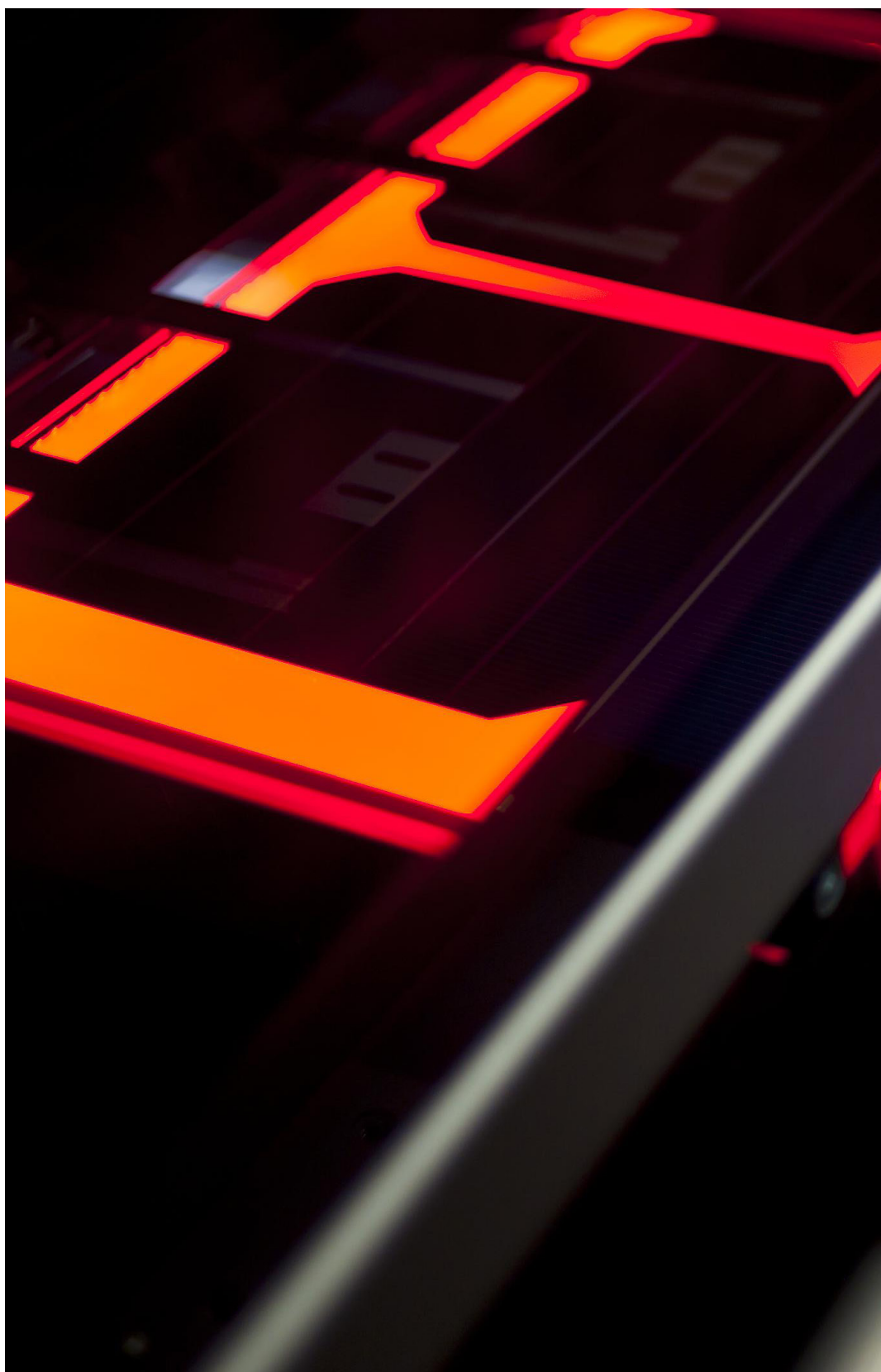
Solar





Off Grid Capacity

Financial returns are a major incentive for going solar, but money is not the only thing that solar panels save. The addition of solar, will improve the environment and reduce greenhouse gas emissions. This will lead to better air quality, and improve public health overall. Ultimately, looking at either finances or carbon emissions, a solar panel system added to the project over the course of a 20+ year plan will support our current plans of creating 247 power cheaper and more reliable.



Generation is a Key Component

“Solar can keep the Grid Bank charged when energy generation is low and discharge when peak demand is high.”

