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The current solar power systems are designed in a way that doesn't allow you to power your home during an outage. This is in order to comply with several safety standards. What this basically means is that devices that control your solar panels are powered down during an outage.

The current standards thus make it impossible for homeowners to draw on power generated by their own renewable energy resources. This significantly decreases the reliability of solar power systems.

The scientists at the University of California San Diego believe they have found the way to solve this issue. Their solution is to develop algorithms that would allow homes to use and share power from their renewable energy sources during outages by strategically disconnecting these devices, called solar inverters, from the grid.

Researchers believe that by using these algorithms they could improve reliability of solar power systems by 25-35 percent.

The advantage of using these algorithms is that they could be implemented with existing technology though they require each home to be equipped with circuit breakers that can be remotely controlled.

The main working principle is based around algorithm's capability to prioritize distribution of

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power from renewable resources during an outage. The algorithm combines different information such as forecasts for solar and wind power generation, the amount of available energy storage and the amount of energy that the residents are projected to use.

Every year, 7 million residents experience power outages. According to researchers the outages that last more than 5 to 10 minutes cost customers more than \$80 billion each year.