

# The Last Three Miles To Disrupt The Trillion-Dollar Utility Industry



## How to Deliver More Green Energy Against Rising Loads

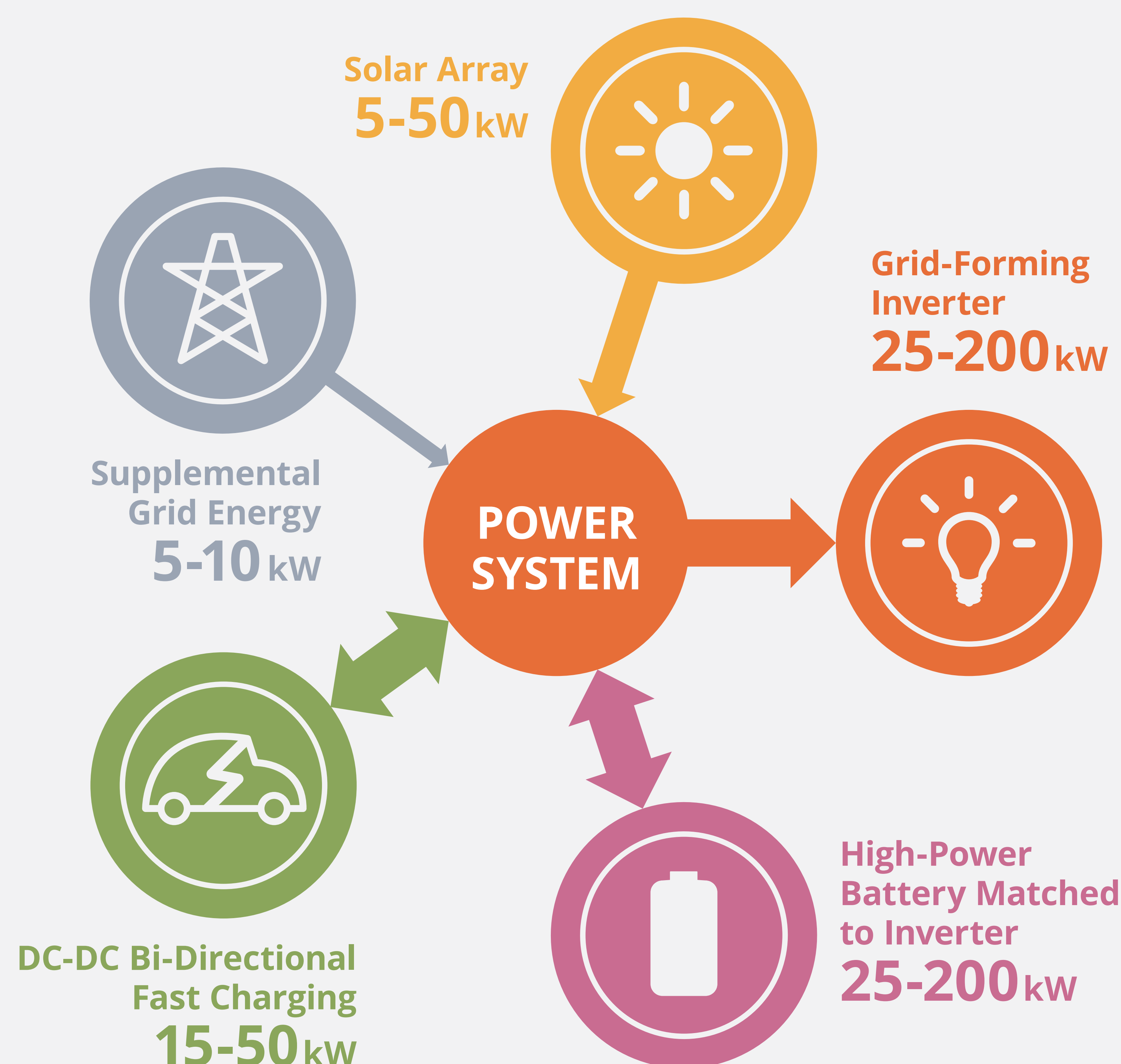
In 2023 the existential danger of climate change was felt by billions of people. Societies must rapidly transition to renewable energy. At the same time, electric vehicles and the all-electric home are creating massive new loads on the grid.

**A central grid can neither technically nor economically deliver sufficient green energy to cope with these rising loads.**

### Independent Power Systems Are Here.

High-power solar-battery power systems are here. They can replace 100-800 A of utility power and have hundreds of kWh of storage. The same system can deliver single-phase, three-phase, and DC power. They work with little or no reliance on utility power.

These independent power systems use grid-forming inverters and do not need utility approval.



### "Three Miles" to a Clean Energy Future

#### MILE 1:

#### Decentralized Solar Energy

Rooftop solar provides energy where it is needed, does not destroy natural habitat, and does not create heat islands because roofs are already black.

#### MILE 2:

#### Batteries

Sunshine varies during the day, is affected by weather, and unavailable at night. Long-lasting, cost-effective batteries can store this energy to be used later or the next day. Battery capacity must match the daily consumption of the home so that excess energy is not sent to the grid when no-one needs it.

#### MILE 3:

#### High Power

In a home or business, peak power is 10 to 20 times average power consumption. Only power systems matched to the peak load can relieve peak power on the grid ("flatten the duck curve") and allow today's power grid to become an "energy" grid.

### Why People Buy Independent Power Systems

- They hate losing power
- They do not want to wait and pay for utility service upgrades
- They can save money by avoiding expensive peak power
- They do not want to ask utilities for permission to get solar energy
- They need to run wildfire suppression systems when the power goes out

### Independent Power Systems Are Better for Everyone

- Large local batteries store all solar energy and do not send solar energy to the grid (when utilities do not need it)
- Independent power systems do not burden rate payers with utility line and transformer upgrades
- Independent power systems can shed load to relieve the grid

### The Future Is Inevitable. Are Utilities in it?

- Utilities risk losing business from partial or full customer defection
- Utilities can offer utility-owned independent power systems
- Focus on rural or strained networks where maintaining power lines is costly
- Fewer maintenance crews and equipment for responding to outages with as more customers on independent power