## Modular Microgrids-as-a-Service



June 24, 2020



### **The New Normal In California**



California's Public Safety Power Shut off (PSPS) program allows for the major utilities to turn off power during high risk weather in order to avoid fire ignitions. While necessary for safety, these are detrimental to our community, businesses, and California's entire economy.

Expect 5-10 PSPS events per year lasting 2-5 days each.



### **Resiliency: Options for the C&I Sector**

### HIGH COST/ LOW RELIABILITY

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#### **DO NOTHING**

 Prepare for long duration outages, potentially costing millions in lost revenue or inventory

#### DIESEL GENERATOR

- Moderate CAPEX
- High OPEX
- Reliability concerns
- Dirty

### LOW COST/ HIGH RELIABILITY

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#### MODULAR MICROGRID

- Indefinite resiliency
- Multiple backups
- \$0 down
- Annual OPEX savings
- Clean

### **Behind-the-Meter Microgrids**

Integrated and controllable distributed energy resources, energy storage, and loads.

Blue sky operation in parallel to the grid. Black sky 'islanding' for continuous operation.

Modular and scalable, from a grocery store to a university campus, and everything in between.



### **Microgrids-as-a-Service**

Several options available from a standard 'power purchase agreement' (PPA) to an 'energy services agreement' (ESA)

- Typically requires \$0 down
- Zero operational risk or O&M costs
- Performance guarantees
- Value stacking
  - Demand charge management
  - TOU energy arbitrage
  - Demand response
  - Ancillary services
  - Virtual Power Plant...



### **Representative Project – Industrial Sector**



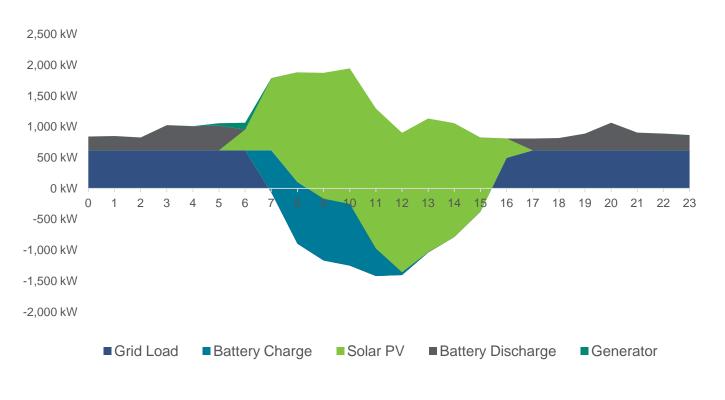
#### 4MW PV



1MW/ 4MWH BESS



815kW NG



#### **HOURLY LOAD PROFILE (GRID PARALLEL)**



#### 95% CO2 REDUCTION



100% RESILIENCY



>10% ANNUAL SAVINGS

### Microgrid-as-a-Service vs. Standard Generator

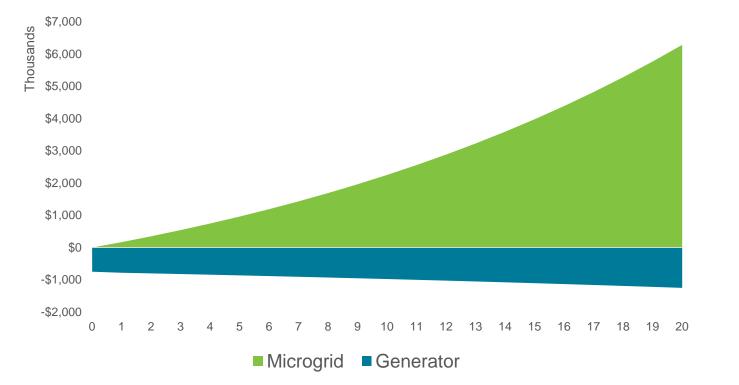
### **CUMULATIVE SAVINGS (COSTS)**

### A 'PROFIT CENTER'

- Microgrid provides price protection as utility rates rise
- Utility rates have been increasing by 6-9% per year

#### A 'COST CENTER'

 Genset represents capital outlay in year 0 and ongoing annual OPEX expense





#### >\$7.5MM DELTA

# THANK YOU

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