Take Control of Your Electricity Bills with Home Energy Storage
Agenda

• Introduction
• Home Energy Storage Overview
• Value Propositions
• Industry growth
• Product components
• AC vs DC coupled
• System Modes
  • Backup
  • Time of Use
  • Self Supply
  • Off-Grid
• PowerPod
• Monitoring and control software
• Smart Home Integrations
• 3 Big Takeaways
About Electriq Power

Electriq Power is a smart home energy storage company.

We leverage world class battery and power electronics technology, plus our own proprietary firmware and software, to provide leading solutions for behind-the-meter power storage in single family homes.

Our products can connect to solar installations and/or the grid and provide our customers with peace of mind when it comes to emergency back-up power or simply reducing their utility bills.

About the Presenter

Aric Saunders
EVP, Sales & Marketing

- Owner/President of solar company
- Founder of 4 energy startups
- Helped introduce Tabuchi EIBS to the US market
- 10 years of residential and small commercial solar
- Previously in Real Estate and Development
Home Energy Storage

- Primarily Grid-Tied battery
- Currently driven by backup power
- Additional value in certain markets
- Accelerating Rapidly
- Names you may know – Tesla, LG, Generac
- A lot of names you may not know
Residential Energy Storage Landscape

<table>
<thead>
<tr>
<th>Hardware Suppliers</th>
<th>HEMS + Integrated Solutions</th>
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<tbody>
<tr>
<td>Battery Only</td>
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<tr>
<td>BYD</td>
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<td>CATL</td>
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<td>LG Chem</td>
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<td>Panasonic</td>
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<td>SAMSUNG</td>
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<td>Inverter Only</td>
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<td>SMA</td>
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<td>OutBack Power Systems</td>
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<td>Schneider Electric</td>
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<td>solar edge</td>
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<td>AELTA</td>
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<td>Integrated Solutions</td>
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<td>ELECTRIC POWER</td>
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<td>ENPHASE.</td>
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Value Propositions

• Backup Power
  • Resiliency
  • Safety
  • Security

• Time-of-Use
  • Rate arbitrage between peak and off-peak
  • Net Metering reductions

• Self Supply
  • Environmental
  • Limited or no grid import

• Grid Services
  • Additional revenue from Utility

Source: EnergySage
Battery Storage Market: Major Growth

**U.S. Q2 2020 deployments reached 168 MW**

The strongest Q2 on record for deployments; Covid-19 pandemic has not hampered the downstream market

- In Q2 2020, 168 MW were deployed, up 72% quarter-over-quarter and up 117% year-over-year, marking the strongest second quarter to date.
- Another record quarter for residential storage deployments showed that key markets California and Hawaii successfully kept installations progressing through Covid-19 lockdowns.
- One large front-of-meter project in California, accounting for more than two-thirds of the total MW deployed, helped drive the strongest Q2 on record.
- The 168 MW total is the second-highest quarterly total ever seen, falling just behind Q4 2019.
- Delays in construction, permitting and customer acquisition from Covid-19 may trickle through to Q3 and Q4 of this year.

Source: Wood Mackenzie Power & Renewables
Battery Storage Market: Major Growth

US Market Expansion

U.S. energy storage annual deployments will reach 7.3 GW by 2025
Sharp scale-ups are being driven by utility procurements and the accelerating residential market

U.S. energy storage annual deployment forecast, 2012-2025E (MW)

Source: Wood Mackenzie / ESA | U.S. energy storage monitor Q3 2020

U.S. energy storage will be a $6.9 billion annual market in 2025
Market crosses $1 billion annual threshold in 2020 even with Covid-19 impacts

U.S. annual energy storage market size, 2012-2025E (million $)

Source: Wood Mackenzie Power & Renewables
Incentives

Federal – 26% in 2020, 22% in 2021

State
- California $2,000 - $20,000
- Hawaii $5,000
- Maryland $5,000
- Massachusetts Varies
- Nevada $3,000
- New York $250/kwh (Long Island)

Utility
- California MCE, gap funding and monthly bill credit
- Colorado Varies, $80 to $500/kw
- Connecticut ConnectedSolutions annual
- Massachusetts ConnectedSolutions annual
- Oregon Virtual Peaker upfront and Annual
- Rhode Island ConnectedSolutions annual
- Vermont Virtual Peaker annual
Energy Storage Product Overview
Popular Chemistries

- **Lead Acid**
  - Original battery technology for homes
  - Low Depth of Discharge (50%)
  - Degradation and short life with lots of maintenance

- **NMC**
  - Higher density
  - Lower cost per kwh
  - Longer history

- **LFP**
  - 100% discharge
  - Increased cycle life (6,000 to 10,000)
  - Trajectory is moving in the right direction

- **Fact vs Fiction**
  - LFP is safer!!!
  - NMC doesn’t have as many cycles
  - LFP is much more expensive
DC Coupling is meant for new Solar + Storage installations. There is no need for solar or micro-inverters.
AC Coupling is meant for retrofitting into already installed solar systems or new AC-modules.
System Modes - Backup

- Customer in backup mode, solar exports to grid.
- Grid goes down around 5:30 pm, battery immediately covers home consumption.
- Solar turns on as battery drains to recharge battery.
- Next day, grid is still out. Battery covers load all day.
- Solar recharges battery again.
- Grid comes back and system immediately starts operating normally.
System Modes – Time-of-Use

Battery discharges as solar declines

Battery charges from excess solar
### PG&E – TOU-A/TOU-B

<table>
<thead>
<tr>
<th>Rate Schedule</th>
<th>Season</th>
<th>Time-of-Use Period</th>
<th>Energy Charge $^2/ ($/kWh) (No Tiers)</th>
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<td>Residential Time-of-Use Service for Plug-In Electric Vehicle, Rate Schedule EV, Rate A $^3/$</td>
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### Utilizing TOU to Save

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<th>Summer Arbitrage</th>
<th>Winter Arbitrage</th>
<th>Summer Daily Savings</th>
<th>Winter Daily Savings</th>
<th>Annual Savings</th>
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<td><strong>PG&amp;E</strong></td>
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<td><strong>SCE</strong></td>
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<td>$0.24</td>
<td>$2.60</td>
<td>$2.40</td>
<td>$900.40</td>
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### SCE – TOU-Prime (Storage Tariff)

#### June to September (4 months)

**Weekdays**

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<tr>
<th>8am</th>
<th>4pm</th>
<th>9pm</th>
<th>8am</th>
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<td>15c</td>
<td>41c</td>
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#### October to May (8 months)

**Weekdays**

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**Weekends**

<table>
<thead>
<tr>
<th>8am</th>
<th>4pm</th>
<th>9pm</th>
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</table>
System Modes – Self-Supply

- **Cloudy solar production**
- **Battery discharges throughout the night**
- **Minimal grid import**
- **Battery charges from excess solar**
- **Battery discharges as solar declines**
Software, Software, Software

- Embedded PowerOS
- Customer-facing dashboard/mobile apps
- Installer-facing mobile apps
- Fleet Management
- Network Operating Center (NOC)
- Integrations
System includes PowerHub which controls the inverter and batteries as per desired system mode. Enables remote config, command & control, software updates.

Data intake, processing, storage of all incoming telemetry data. All services for commissioning, monitoring, configuration, command and control, user management are handled from here.

Smart Home Integrations
Utilizing Electriq’s OpenADR or PowerADR APIs Smart Home Providers can get access to energy usage and production data in near real time.

Network Operations Center (NOC)
NOC is Electriq’s “command station” which monitors grid conditions, weather patterns and demand response programs to optimize system functionality.

Fleet Management
Real-time monitoring of Electriq systems with incident management allowing automatic or manual intervention for resolutions.
Electriq’s Product Suite

**ELECTRIQ POWER APP**

The Electriq Power App provides users with real-time energy monitoring and intelligence to automate energy costs savings on any device.

[Customer Dashboard](#)

**ELECTRIQ POWER TOOLS**

Electriq PowerTools provides online training, videos, and certification for installers as well as all the necessary tools to size and commission systems.

**ELECTRIQ POWER FLEET**

Electriq Power Fleet allows our network operating center to monitor and control systems in the field to help diagnose issues, and provide grid services to utilities.
Electriq Power App Screenshots
Grid Services Integration

System Capabilities

• Open ADR 2.0b or certified
  • Plug-and-play solution
• Proprietary Software – PowerADR
  • Take control en masse
  • Aggregated network of opted-in systems can be controlled
  • Set discharge schedules with as much, or as little, power as needed
Smart Home Integration

- Open ADR 2.0b or PowerADR options
- Alexa, Google Home
- Smart Load Panels: Span.io, Lumin
- What can be done with access to
  - Real time data
  - Grid power, home consumption solar power, and battery data
  - Weather forecasting
  - Instantaneous control of electricity sources and loads
- Not just monitoring, but control
- How valuable is a smart home without power?
Three Big Takeaways

Industry is maturing and growing rapidly

Not just a generator replacement

Software is the key
Thank You

aric@electriqpower.com
650-505-6591