Company Introduction for EPIC Innovation Tour
June 16, 2021
An Unsustainable Model: Our Grid Has Not Changed in a Century

The electric grid was built to efficiently link centralized generation with end users, in a one way street. A century later, very little has changed and legacy assets are severely under-maintained and unable to respond to dynamic stresses.
Grid Crises are Becoming the New Normal

August 2020
California’s market operator implemented rolling blackouts to prevent grid collapse.

Record-high temperatures combined with the loss of critical generation assets led California’s grid operator to declare a state of emergency, as the state braced for the largest power outage it has ever seen.

February 2021
Texas: Mass utilities failure

After two severe winter storms, more than 4.5 million homes and businesses were left without power, some for several days. The crisis is linked to several deaths as families were forced to be without heat.

The Future
Extreme weather is exposing the weaknesses in the system.

The deficiencies go beyond what we have already seen and it’s primed to get worse.
As renewable energy has become a larger portion of our resource mix, the ramp-up required to meet energy demand in the evenings is more challenging. We still rely on dirty, gas-fired peakers to meet this need today.

The Evening Ramp in Net Load is Causing Ever Increasing Stress

**Problem Statement 4**

**Non-Renewable Energy Required On a Typical Day in California (2012 to 2020)**

- **Daytime Trough**: During the day, most energy demand is met by renewable generation. As the amount of renewables has increased over time, this trough has deepened.

- **Evening Peak**: As the sun sets and renewable generation declines, demand increases in homes and inefficient, polluting generators are brought online to fill the gap.
Imminent Electrification of Transport Will Compound Grid Stress

As EV charging needs rise, demand will increase in peak and could overload fragile distribution networks. This underscores the need for solutions capable of actively managing and balancing load across the grid.

EV growth is set to take off, driven by regulatory change and declining costs that are accelerating fleet electrification.

Problem Statement

Utilities' distribution networks at increased risk of stress & instability

Governor Gavin Newsom signs executive order requiring all new passenger vehicles sold in California to be zero-emission by 2035.
Efficient, Asset-Light Solutions (VPPs) Are the Most Viable Option

Orchestration of distributed energy resources are effective at solving grid instability at a fraction of the cost of traditional natural gas peakers and expensive battery systems.

**Peaker Plants**
Gas Fired Single Cycle

- Decommissioning across US
- Cost-prohibitive to build
- Rate-based to consumer

**Battery Storage**
Large Scale Lithium Ion

- Novel clean hardware technology to manage demand
- Limited near term supply
- Competing uses
- Costs still coming down

**Virtual Power Plant (VPP)**
Distributed homes connected to the grid

- Available today at scale, software driven
- Zero-carbon; complements storage, EVs
- No state subsidy and not rate-based
- Pays users

The Solution
160,000 active users have earned $13.7 million for saving energy

40% of OhmConnect Users are Low to Moderate Income Families, and 20% are in Disadvantaged Communities

- Price of wholesale electricity spikes
- Homes with OhmConnect reduce energy use
- Energy market pays OhmConnect
- OhmConnect pays its network of families
OhmConnect provided critical relief to the grid to avoid rolling blackouts on Sunday.
User reductions on Sunday 9/6 peak event

We saw nearly 0.7 kW/user reductions across the majority of our users

* Data is for 9/6/2020
* CAISO requested reductions from 3 - 9pm
* Represents nearly 70k users dispatched sometime between 5 - 7pm
We are building the largest VPP in the U.S.

→ 550 MW of 100% zero-carbon peak energy
Resi-Station, North America’s largest distributed clean power plant, will link together hundreds of thousands of homes in California to save more than 550 Megawatts of power at full scale -- making the power grid more resilient and more responsive as we face fires, heat waves and the effects of climate change.

→ Can Pay $200M Directly to Consumers
Accessible to renters and homeowners. This project will put $200 million back in the pockets of California’s families -- focusing on the most disadvantaged. In addition, this project can allow replacement of California’s most outdated and environmentally damaging power plants.

→ Prevent Flex Alerts and rolling blackouts
Resi-Station will provide peak power reduction equal to taking over 300,000 homes off the grid. If this had been available on August 15, 2020, it likely would have been sufficient to avoid rolling blackouts.

→ No public subsidy; 100% private capital
This project operates solely through California’s energy markets and will not require any public subsidy.
Massive #EndCABlackouts Campaign Launched on May 19

Providing Support to Gov Newsom and CPUC in Effort to Prevent Blackouts

- **OhmConnect “City Energy Challenge”** led by Mayors of Large Cities
  - $50,000 in Educational Scholarships to “Energy-Saving Superhero”
  - San Jose, Oakland, Fresno, Bakersfield

- **FREE Smart Thermostats to Consumers**
  - Smart Thermostat Users Save 2-4x More Energy than Behavioral Users

- **Statewide Marketing Campaign**
  - Film and TV Star Kristen Bell to Headline Campaign

- **Device Partnerships with Google, Ecobee and Emerson**
  - Deep discounts allow OhmConnect to offer smart thermostats at no cost

- **$3M Grant from CA Energy Commission to Reach LMI Consumers**
  - Focused on Central Valley