

Innovation Showcase: Focus on ConnectDER

E Source Utility Innovation Partners Program



E Source

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E Source Utility Innovation Partners Program

Welcome members of the E Source Distributed Energy
Resource Strategy, Technology Assessment,
and Demand-Side Management Services

What's the Innovation Showcase?

- Monthly web conference series to:
 - Highlight privately owned companies with innovative products, services, or business models
 - Help utilities understand how entrepreneurs and investors view markets
 - Stimulate new utility thinking, fresh ideas, and different points of view
 - Explore market-driven approaches and expose potential opportunities
- **Note:** This is not a company endorsement and we've received no compensation

EnerTech Capital



- **Longest continuously** operating venture capital (VC) firm with a sector focus on the energy and technology industries
- **Origins in a US-based power company**
- **EnerTech Capital has:**
 - Made VC investments in **71 companies**
 - **36** investment exits
 - Assessed more than **12,000 business plans**
 - Approximately **\$500 million in capital under management**

Innovation Showcase Format

25-minute company presentation, covering:

- Company description
- What problem(s) does the company solve
- Target market
- Quantitative value proposition and experience to date
- Competition
- Unique attributes
- Go-to-market strategy
- Business model
- Technology or product roadmap



Whitman Fulton, CEO



ConnectDER™ enables rapid connection of grid-ready distributed energy resources (DERs)

571-969-1701 || info@connectder.com



FCC ID: R2HEP18



connectDER

CL100 240V
3W Fm2S
60 Hz
DATE: 01.18

connectDER
ConnectDER, Inc., Falls Church, VA

Suitable for use as Service Equipment
Type II Construction
Model Number: 2-0-0-10-000

Intended for use with a terminal region and ring-type meter sockets, 1/4", 3 wire,
rated up to 200 amp maximum, 240V.

Rated Output: 60W, 1/4", 3 wire, 60 amp maximum. 20 continuous amps for alternative energy use
based on continuous input; combined utility and alternative energy input when used in a meter
socket rated 100 continuous amps.

When used in conjunction with a circuit breaker rated to more than 200
amps, the maximum continuous current rating of 60A, 120/240V
applies.

Not for use in conjunction with a circuit breaker rated to more than 200
amps.

The input region for the device wiring terminals is as follows:

- 1/4" 60A terminal to 120V ground.
- 60A terminal to 240V ground.
- 1/4" 60A terminal to 240V ground.



elsier



elsier
1110 8230
Zipcar

2100124



SOLUTION



APPLICATIONS

Utility Operations



DER Market



RESULT



Platform for DERs,
Provided by the utility

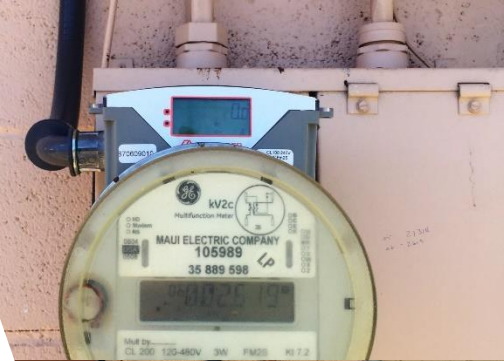
A high-angle, wide shot of a massive crowd of people filling a city street. In the foreground, a line of police officers in full riot gear, including helmets and shields, is positioned. The officers' shields and uniforms have the word "POLICIA" and "LC88" visible. The crowd consists of people of various ages and ethnicities, many looking towards the camera or the police line. Some individuals in the crowd are holding up smartphones to record. In the background, there are blue and red circular traffic signs with a diagonal slash, indicating a no-parking or no-stopping zone. The overall atmosphere appears to be one of a significant public gathering or protest.

DERs and the grid

Utilities have
something
unique to offer



Standardized Interconnection, PV Market



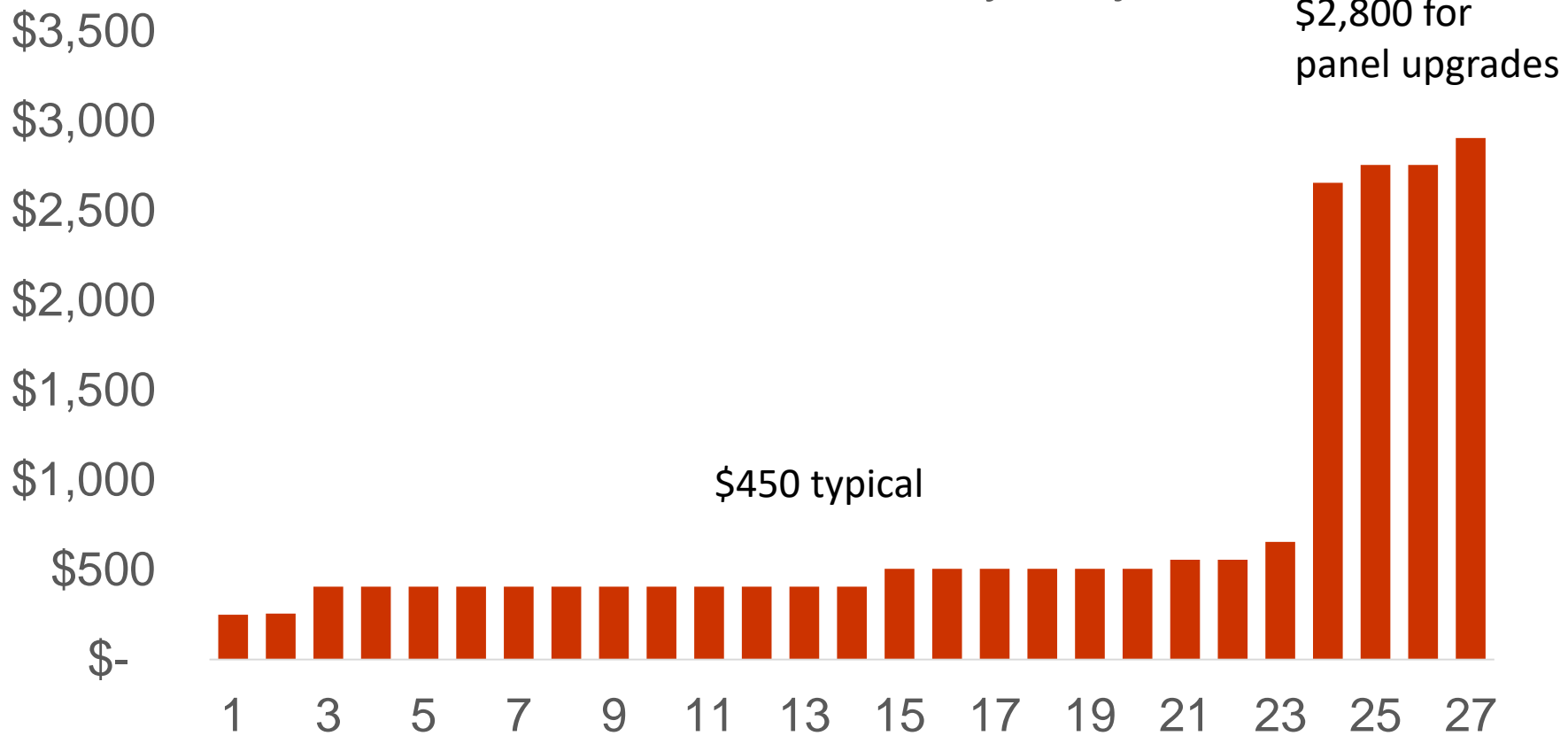
Replace
these



with this

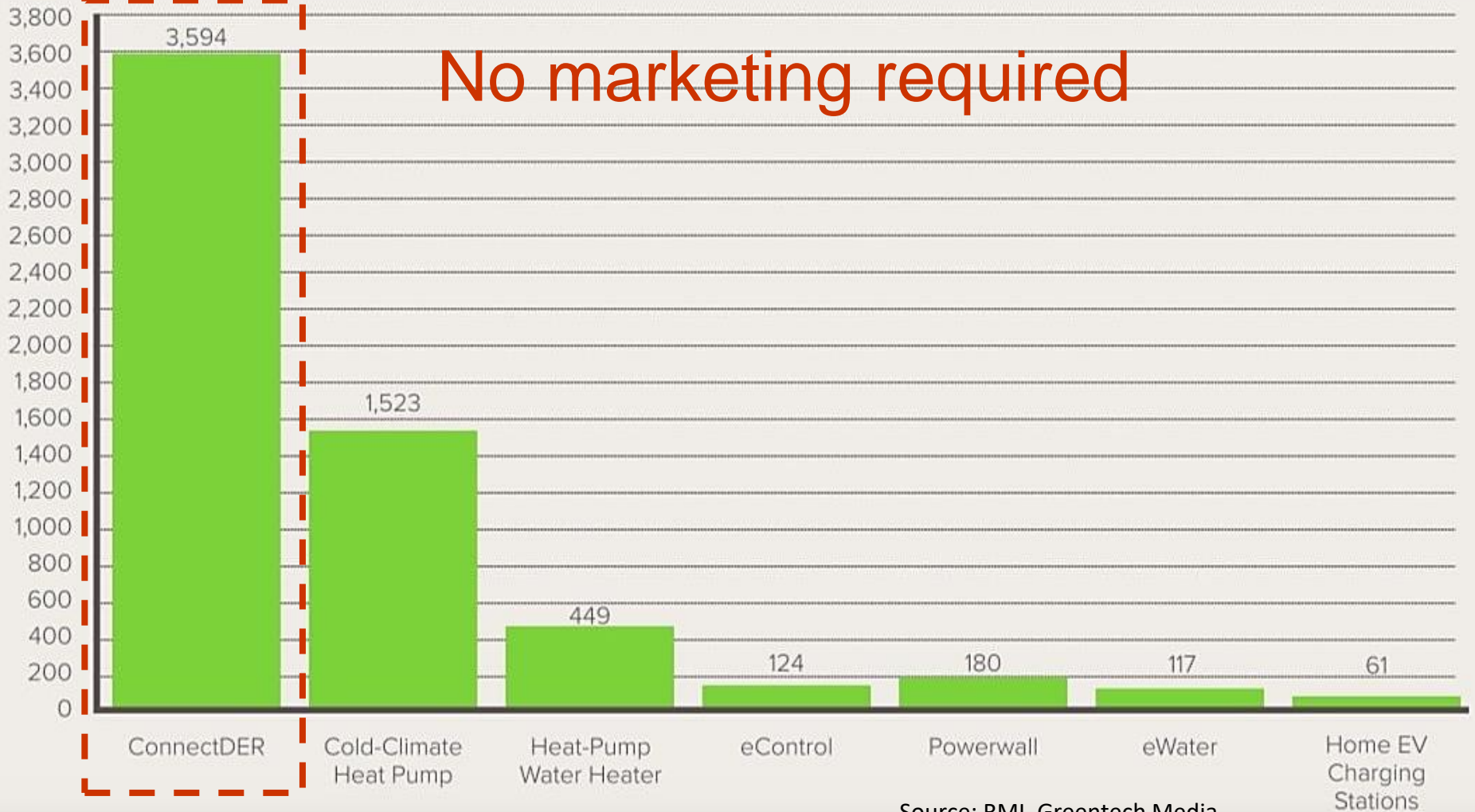


Installation Cost Avoided by Project



Source: GRID Alternatives, PEPCO pilot

No marketing required



Source: RMI, Greentech Media



DER meter



Whole house meter



Ethernet bridge



Communications module



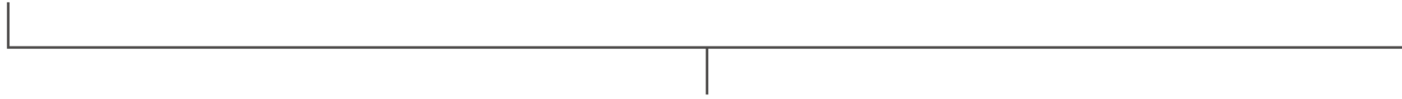
DER relay



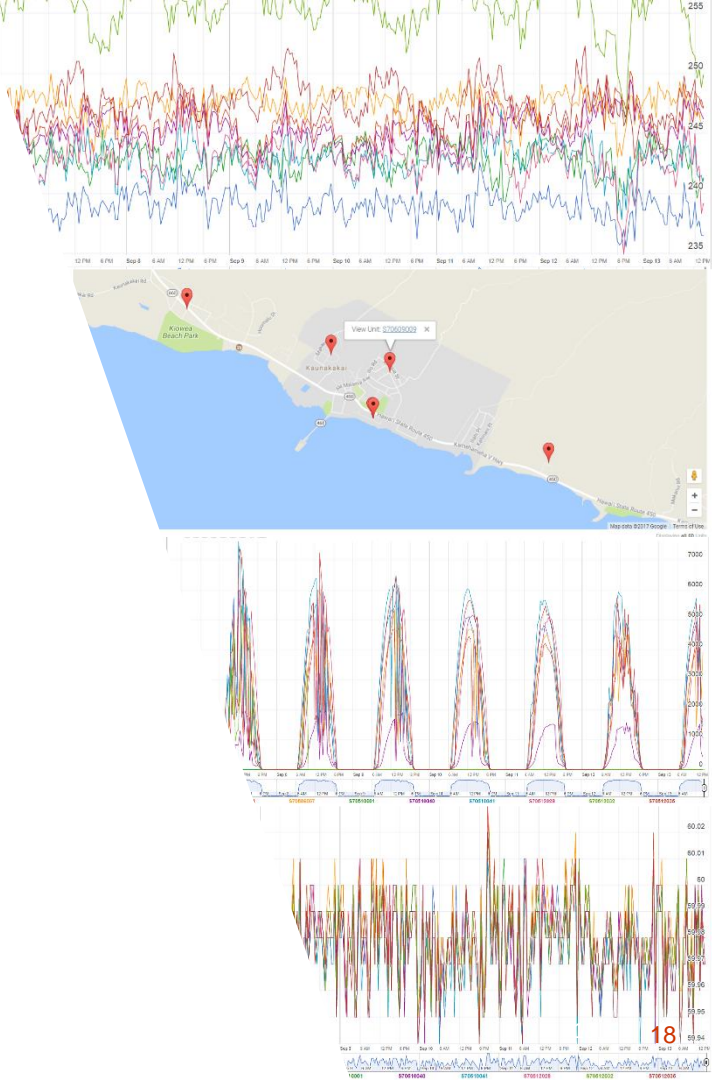
Circuit Breaker



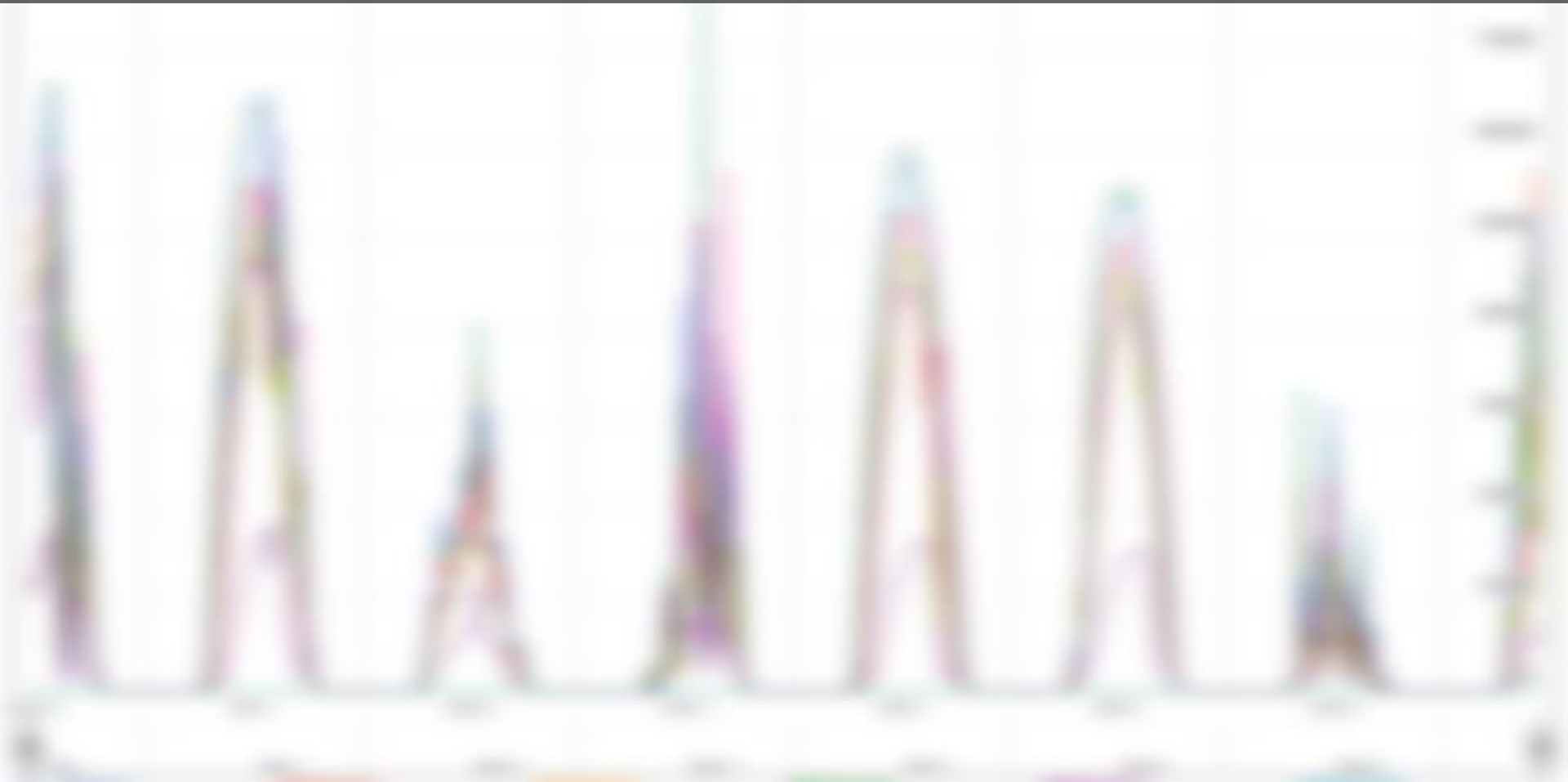
Terminal block



DER Integration, Utility Operations



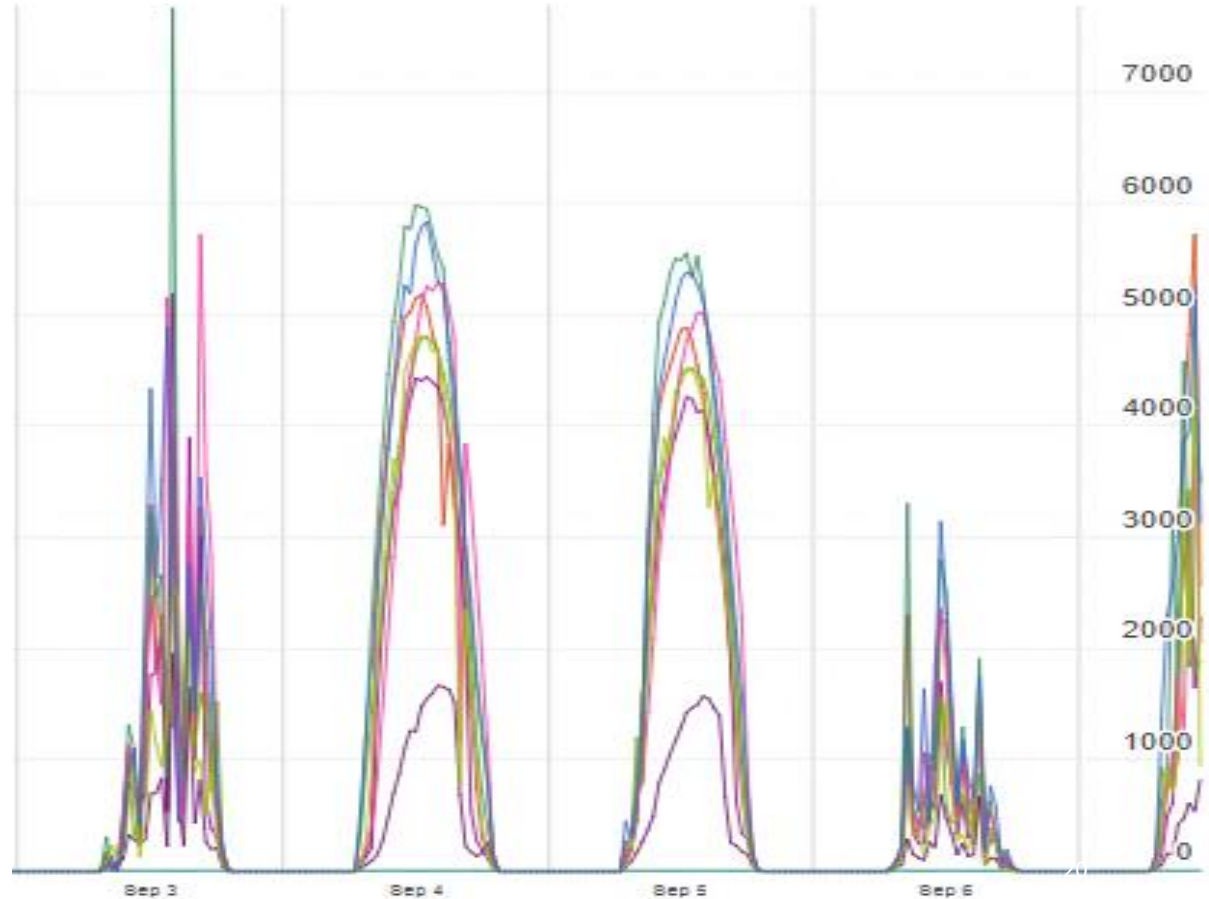
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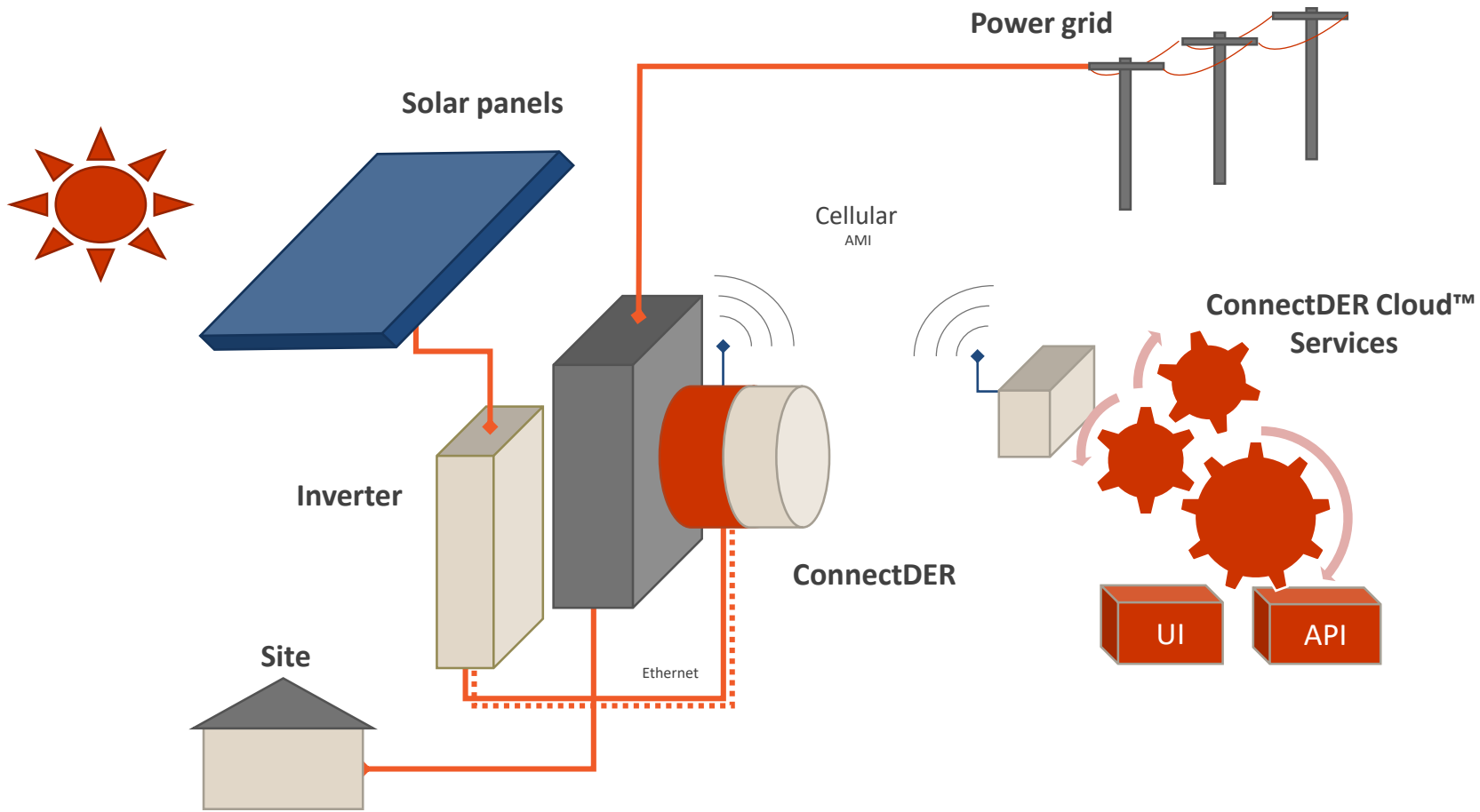


with this

[Download all sample data as CSV](#)

Premises	
PREMISES ID	EMPTY
ADDRESS	2025 Washington Avenue
CITY	Philadelphia
STATE	Pennsylvania
ZIP	19146
LATITUDE	39.9396252
LONGITUDE	-75.1773305
DESCRIPTION	EMPTY
LOCATION NOTES	99.98/99.96/100.29,9753,24148,7352,9733,24160,7348
TAGS	Philly Test Units





APPLICATIONS

Utility Operations



DER Market



- Last-mile grid connectivity (for DERMs)
 - Secure AMI communications channel (\$???)
 - Metering unmasked load (\$800)
 - Remote disconnect on DER circuit (\$400)
 - Direct integration of eligible DER assets (\$???)
-
- (Universal interconnection)
 - SREC tracking + PV financing (\$250)
 - Customer production portal (\$na)
 - Resiliency via whole-house islanding (\$1,000)

Sample Projects



Meter PV & EV, unmasking load



Emergency disconnect of PV, load-following



Control inverters w/DERMS



Ancillary services, NYISO



Utility-owned PV, line-side interconnection



New revenue stream

Vs Competition	Interconnection Solutions		Communications and Metering Solutions		
	RMA	ConnectDER	Smart Inverter	Smart Breaker	Smart Meter
2S or 12S meter form	O	O	na	Na	O
Embedded circuit breaker	O	O		O	
Above-meter or below-meter connection		O			
Installable w/o AC disconnect		O		O	
Supports systems up to 15 kW		O			O
Works with all inverters	O	O	O	O	O
Secure utility network		O		?	O
Communications to inverter		O	O		
Single cloud for multiple inverter models		O			
Integrated, field-calibratable revenue meter		O			O
Validated PF, voltage, and power control		O			



Business Model

“Hardware first,”
Integrate w/ ecosystem

Market Approach

Organic now,
Channel in 2019

Roadmap



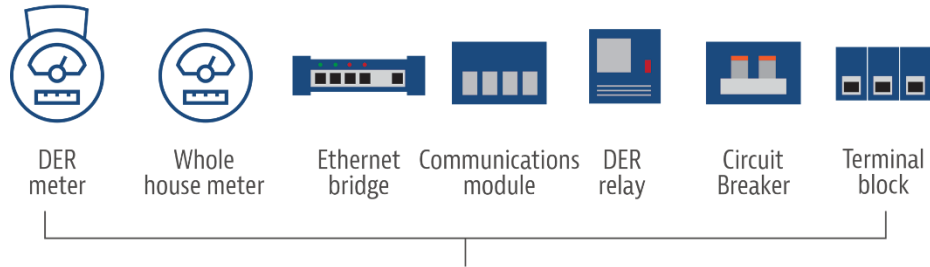
● **Interconnection
2016–2017**

● **Integration
2018**

● **Expansion
2019**

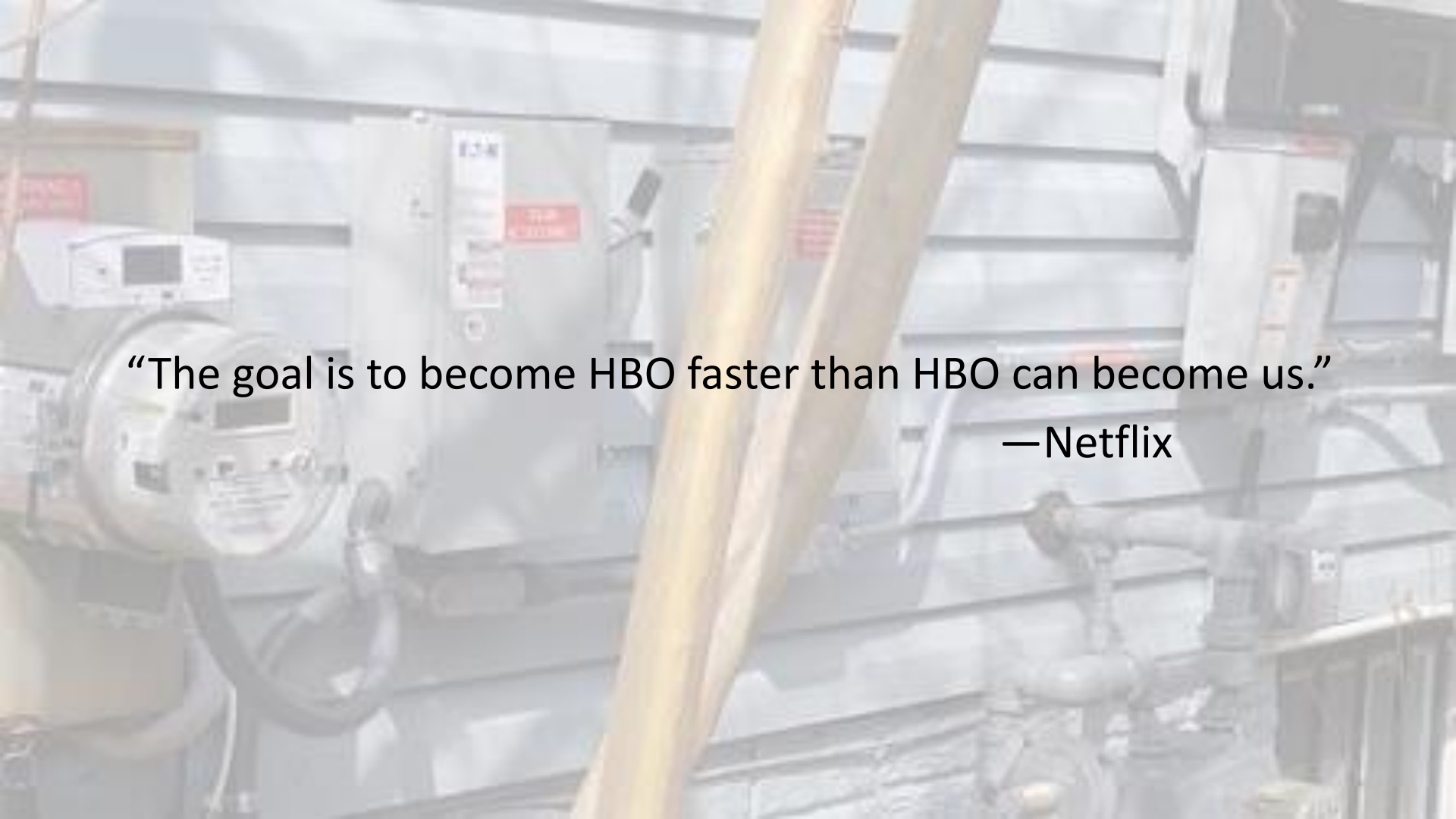
● **Transformation
2020–**

2019 Expansion



- Three AMI network integrations
- Site-level disconnect relay
- IEEE 2030.5 embedded stack
- Additional addressable inverter models
- Alternate form factors for expanded coverage
- Plug and socket DER interface



A faded background image of a utility room. On the left, there are several electrical meters and a control panel with a digital display. In the center, a large, light-colored pipe runs diagonally across the frame. To the right, there are more pipes and electrical equipment. The overall scene is somewhat blurry and has a light, desaturated color palette.

“The goal is to become HBO faster than HBO can become us.”
—Netflix

Questions?



Whitman Fulton, CEO

571-969-1701 || info@connectder.com



Thank You!

Next Innovation Showcase: Virtual Peaker

June 19, 2018, at 2:00 p.m. ET

Info and registration at www.esource.com/events



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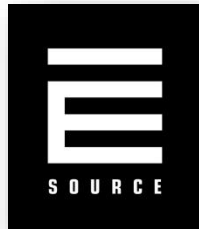
matthew_burks@esource.com

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Utility Innovation Partners Program Goal

To **enable** utility **innovation**, through:

- Unmatched **emerging market intelligence and insight**
- **Cost-efficient access** to emerging company deal flow
- **Networking** with those who are driving energy innovation today



What's the Utility Innovation Partners Program?

- Unique strategic partnership between E Source and EnerTech Capital
- Provides utility partners with specialized access to:
 - Competitive market intelligence from North America's most experienced energy venture capitalists and market analysts
 - Best practices and leading research around utility strategic innovation program design, development, and execution
 - Exclusive networks of utility, entrepreneurial, investment, banking, and corporate leaders
 - Top-tier energy venture deal flow and early-stage company and market insights

The Right Fit?

This program is ideal for utilities that are:

- Considering development of a direct investment, innovation, or strategic partner development program
- Wanting visibility into emerging energy technologies and services
- Needing insight into evolving competitive business models
- Desiring a better understanding of the utility commercial customer landscape
- Looking to understand energy company and investor perspectives

**We provide immediate and in-depth exposure to
emerging trends from the inside**

Thank You!

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