



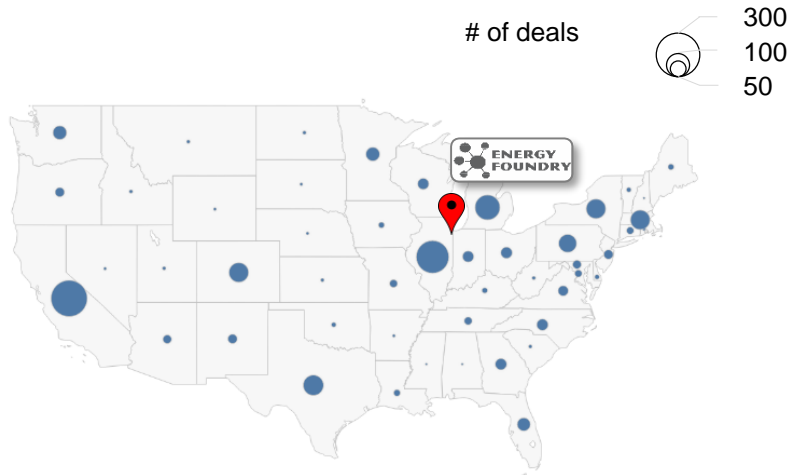
# ENERGY FOUNDRY BACKGROUND EE INNOVATION TRENDS

**DAMIEN DESPINOY**

**September 17, 2019**

# Our unique industry leading position gives us visibility nationwide and across all stages of the investment lifecycle

## Actively sourcing deals nationwide<sup>1</sup>



- We see **nearly every opportunity in our sector** across the country
- We **actively engage** in all the key ecosystem nodes (e.g., business plans, universities, incubators/accelerators)
- We invest in businesses that **deliver impact in Illinois**

## Comprehensive view of the investment cycle

	Lab	Early	Late
Energy Foundry	✓	✓	✓
Others Energy VCs/CVCs	✗	✗	✓

- **Few investors or corporations** look into early stages, despite significant market potential
- Our large pipeline and unique position in the innovation ecosystem gives us **strategic visibility on innovation trends** 2-3 years ahead of the market

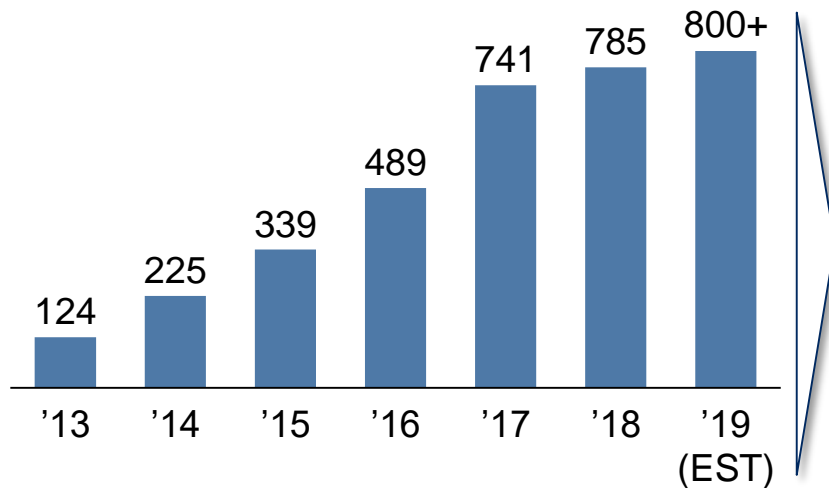


<sup>1</sup> In addition, ~15% of international deals

# Which provides strong deal flow and a complete view of new innovations across the energy and EE value chains

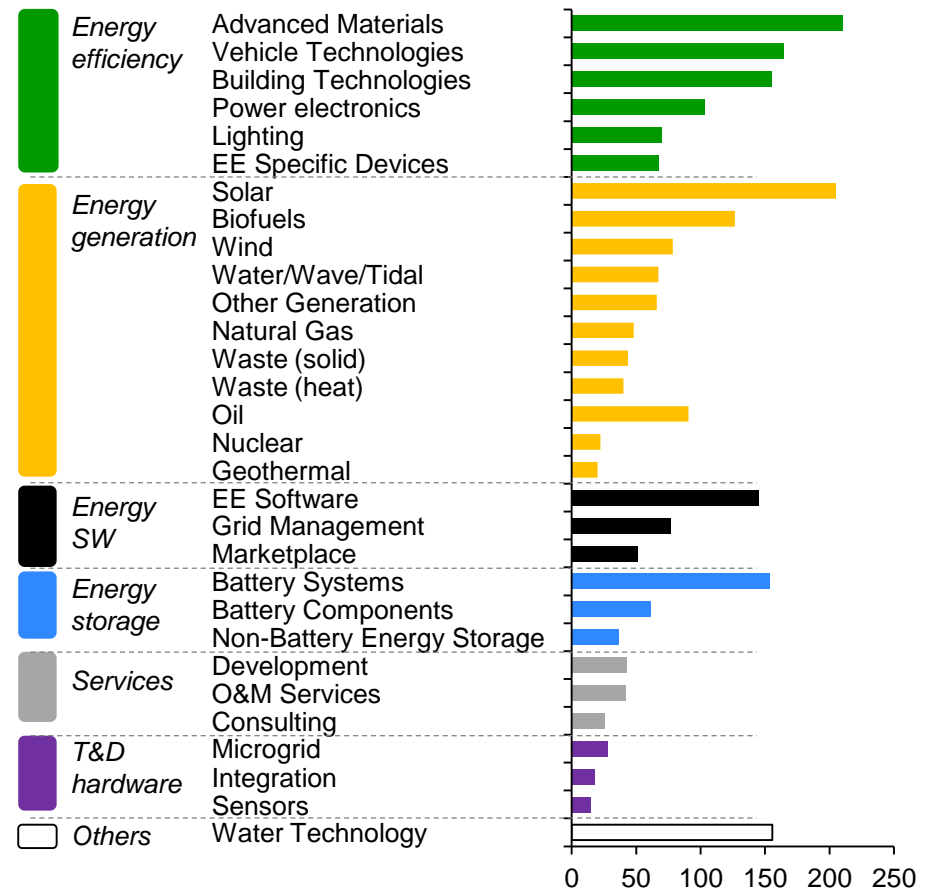
**750+ New CleanTech deals evaluated each year**  
# of deals

**3,000+ early-stage CleanTech deal opportunities**  
in proprietary database



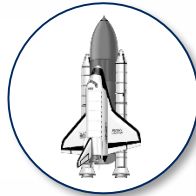
Energy Foundry's reputation and market position makes us an **early call for startups**

**Covering all sectors of the energy value chain**  
# of deals



# To deliver success on our investment Energy Foundry takes a different approach to venture investing

## SILICON VALLEY's "MOMENTUM" APPROACH



Build upon disruptive platform (i.e. Smart Phone) in uncharted sector

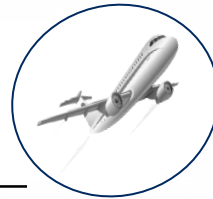
Back a great team to find/execute on opportunities in the uncharted sector

Growth is more important than profits to deliver investor returns

Cash can accelerate development and scale customer adoption

Spend CapEx if needed

## ENERGY FOUNDRY "THESIS" APPROACH



Disrupt an existing commoditized sub sector

Back a disruptive new tech/business model - Only add critical team members

Drive profitable sales to limit capital and deliver investor returns



Manage cash for long development and sales cycles - Work with partners

Leverage partners to limit CapEx

**Target**  
10% Success  
IPO

**Target**  
60%+ Success  
Strategic Sale

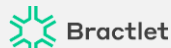
# We invest in distinctive innovations across archetypes and subsectors

 Key role in EE/customer programs  Long-term role programs

## RECURVE

### SOFTWARE & DATA

- SaaS platform for analyzing, calculating, verifying energy efficiency savings
- Large utility and 3<sup>rd</sup> party TMV&A organization customers



### BUILDING TECH & SOFTWARE

- Software for M&V of efficiency
- Best in class technology achieves 30% savings
- Deployed in 50+ buildings



### ENERGY SERVICES

- O&M Software for residential, C&I solar
- Monitoring and managing performance on thousands of assets for installers and financiers



### BUILDING TECH

- Smart, tankless water heater for C&I, 35-40% energy savings
- Installations have avoided 2.5B pounds of CO<sub>2</sub>
- Created 40+ jobs

### ENERGY STORAGE

- Long duration (12 – 96 hour) grid-scale storage for resiliency and firming renewables
- Lab demonstration of 1kW / 24kWh system

PENDING



### ADVANCED MATERIALS

- Generates power from waste heat; would save 2.8B metric tons of CO<sub>2</sub> on global deployment
- Levelized Cost of \$0.01/kWh at scale
- \$3.8M Arpa-E grant



### SOLAR

- Solar panel “sticker” that solves aesthetic issues for rooftop solar
- Color matching and printing technology; partnered with Avery Dennison

NEW



### SMART HOME

- New distribution panel for smart homes; cheaper solution for DER integration
- Founder launched Tesla’s battery business



### ADVANCED MATERIALS

- Energy-efficient transparent light film for electronic displays
- 1/10th the power consumption of current solution, enhancing battery life



### SOFTWARE & DATA

- Software for optimizing fuel delivery logistics
- A typical contract saves 150,000 lbs of CO<sub>2</sub> / yr
- More than 40K homes on the platform



### CIRCULAR ECONOMY

- Energy-efficient solution for recycling polystyrene via novel dissolution process
- Eliminating packaging waste and enabling recycled content



### STORAGE & MATERIALS

- 5-10x better battery with silicon-graphene anodes
- >\$6M in grants to support EVs and portable applications
- Scaling manufacturing; JV with JNC



### SOFTWARE & DATA

- Technology developed at GeorgiaTech with pre-eminent expert on motion control
- Platform technology for industrial equipment



- Platform tech spun out of Argonne, Acquired by John Crane

EXITED



- Decision tool for system-level EE at central plants, Acq. by engineering co

EXITED



- Tech-agnostic power project developer

EXITED



- Software for oilfield water management.

EXITED



# Some of our portfolio companies could support your efficiency and customer programs

NON-EXHAUSTIVE

## RECURVE

### PAY FOR PERFORMANCE

- **Maturity:** Customers include PG&E, NYSERDA, Oregon, Clear Results among others
- **Recurve Sells to Their End Users:**
  - Utilities (EE Programs, EE M&V, P for P)
  - Aggregators (Efficient assessment of EE performance)
  - Regulators (Optimize & Procure)
- **Value Proposition:**
  - Foundation for the procurement of demand side resources
    - ✓ Quantify Site Level Efficiency: Real-time Calculations and site level comparison groups.
    - ✓ Optimize: Drive savings, assess options, and increase customer satisfaction.
    - ✓ Procure: Customer targeting and data driven program models. Reduce risk, align incentives, & promote innovation.
    - ✓ Finance: Pay costs of implementing Pay-for-Performance cash flows using project finance.

Recurve engages directly with utilities. Can deliver strong value to EE programs and pay for performance



### COMMERCIAL BUILDING SOFTWARE

- **Maturity:** Commercially Deployed >25M ft<sup>2</sup>
- **Bractlet Sells to Their End Users:**
  - Commercial real estate investors / owners / operators
- **Value Proposition**
  - Reduce energy consumption and maximize ROI of energy improvement projects
  - Unique approach identifies 30% more kWh of economically viable EE projects
  - Capital planning, scenario analysis and portfolio management



Bractlet does not engage directly with utilities, but EE benefits and portfolio management may be relevant to your programs / customers



### SOLAR MONITORING & SERVICE

- **Maturity:** Commercially Deployed >70k AUM
- **Omnicidian Sells Through a Channel and to End Users:**
  - Solar Installers / Lenders (channel to homeowner end-users)
  - Solar Financiers (institutional)
- **Value Proposition**
  - Solar monitoring and perf guarantees
  - Ongoing customer touchpoints and differentiation through service
  - Reduce investment exposure on underperforming assets

#### How Does The Program Work?

##### We Monitor & Alert

Our state-of-the-art technology monitors your energy generation around the clock. We'll know you have a performance issue, often before you do. And we'll alert your installer of the issue for you!

##### We Manage & Repair

We follow-up and pay for maintenance and repairs on all covered hardware and software system components through our nationwide network of qualified service professionals. 800# customer support is available to every plan participant with

Omnicidian does not engage directly with utilities, but could be a solution provider for your customers with solar problems

# Looking ahead – Innovation in AC-Mechanical systems could drive efficiency and/or displace power for alternate energy sources

## New AC + Storage

- New approaches efficiently integrating storage (i.e., chemical, thermal) with AC systems, driving **energy efficiencies** and **lowering peak demand**



## Innovation Trends in AC-Mechanical

## Downsizing CHP

- **System integration innovation** combining proven components into downsized CHP systems (~1-10kW of electric power)



## Alternate energy AC-Heat pump

- Systems that use **alternate energy sources** (e.g., NG, Waste heat) to **power AC/Heat pumps**, potentially **displacing energy supply away from power**



# Looking ahead - New form factors will allow storage to compete at retail rates, changing dynamics for utilities

Traditional approach Permanent Portable

NON-EXHAUSTIVE

Storage Approach	Example company <sup>2</sup>	Products	Benefits
Structural	NOVELE	 <ul style="list-style-type: none"> <li>Wall-embedded battery (thin)</li> </ul> <p>10 kWh</p>	<ul style="list-style-type: none"> <li>Backup (connected circuits/equipment), Demand shaping, Net metering</li> <li>Reduced wiring cost compared to traditional approach (i.e., proximity to point of use)</li> <li><b>Professional install and permit needed</b></li> </ul>
Garage	swell	 <ul style="list-style-type: none"> <li>Wall/Floor - battery (thick)</li> </ul> <p>6+ kWh</p>	<ul style="list-style-type: none"> <li>Integrate 3<sup>rd</sup> party battery with residential PV, providing Backup, Demand shaping, Net metering, Peak shifting</li> <li><b>Professional install and permit needed</b></li> </ul>
"Living-room"	ORISON	 <ul style="list-style-type: none"> <li>Appliance-looking battery</li> </ul> <p>2.2 kWh</p>	<ul style="list-style-type: none"> <li>Demand shaping &amp; Backup power (self-islands circuit), Speaker, LED lighting</li> <li><b>Self-install, Plug&amp;Play, no permit, easy integration in living spaces</b></li> </ul>
Outlet	hygge power	 <ul style="list-style-type: none"> <li>Battery equipped outlet</li> </ul> <p>~0.1 kWh</p>	<ul style="list-style-type: none"> <li>Demand shaping &amp; Backup power (to devices connected to outlet), Wifi connectivity, surge protection</li> <li><b>No installation, Plug&amp;Play, no permit, low cost (\$99)</b></li> </ul>
Portable	LIGHTBOX	 <ul style="list-style-type: none"> <li>Suitcase-shaped battery</li> </ul> <p>~0.5 kWh</p>	<ul style="list-style-type: none"> <li>Provides power for outdoor/travel applications, no demand shaping possible (no permanent grid connection)</li> <li><b>No install, Plug &amp; Play</b></li> </ul>

- New approaches in BTM storage will likely **boost adoption in Residential and Commercial**
- A wealth of start-ups develop **alternatives to the traditional approach**
- While it is unclear which approaches will be most successful, increased deployment of BTM storage will **impact all stakeholders (developers, owners, tenants, managers, utilities)** in the Residential and Commercial verticals

1 Behind the Meter

2 Example company representative of the type of approach

SOURCE: Energy Foundry analysis, Press search, Company websites



# Questions



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# Energy Foundry engages with a wide array of leaders to deliver value

