

NYSERDA Clean Technology Incubator

Evaluation Case Study: ACRE

Final

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1 Introduction

Since 2009, the New York State Energy and Research Development Authority (NYSERDA) has supported six clean energy business incubators with a goal of accelerating the market entry of clean energy solutions. The ACRE incubator, housed in the Urban Future Lab at New York University, has been a standout partner, accounting for 66% of all incubator-leveraged funds across the six incubators NYSEDA funds since July 2017. ACRE nurtures entrepreneurs who have developed promising innovations designed to save energy or reduce greenhouse gas (GHG) emissions, which in turn, helps NYSEDA and the State of New York meet their climate goals. New York is aiming for 70% of their electricity to come from renewable energy by 2030 and for net zero GHG emissions a decade later as required in the New York Climate Leadership and Community Protection Act.

This case study details NYSEDA's support of ACRE, the activities and support ACRE provides its clients, and highlights three companies and the successes they have achieved. In January 2020, the case study authors interviewed ACRE management staff, a project manager on NYSEDA Innovation's Tech to Market team, and representatives of three ACRE client companies to document how ACRE supports its clients and accelerates clean energy solutions to market. The authors also reviewed bi-annual reports ACRE submitted to NYSEDA, as well as client company profiles and business plans.

1.1 NYSEDA Support of ACRE and Its Clients

NYSEDA supports ACRE in several different significant and comprehensive ways by investing in the intellectual as well as money capital of its clients. NYSEDA provides \$2.5 million to ACRE under its current contract and expects to continue financial support. In addition, NYSEDA is unique in that it gives expert advisement and access to numerous tools and connections that are well beyond the resources that companies can get from other support networks.

Representatives from NYSEDA advise ACRE on program development, such as the H2 Refuel Accelerator program that supports innovators whose technologies advance hydrogen fuel infrastructure. ACRE staff and clients may access NYSEDA's network of technical experts and market actors for insights and advice. Finally, NYSEDA supports ACRE by advertising ACRE's successes through NYSEDA's marketing channels, which have a broad reach.

NYSEDA is key to ACRE's success and the companies that work with ACRE benefit greatly from that interaction. NYSEDA's support for ACRE clients is multifaceted in that there is both direct engagement with the clients and indirect through the ACRE incubator. For example, NYSEDA hosts a Green Innovation Showcase where early stage companies are strategically paired with investors. NYSEDA also directly supports ACRE clients by providing connections to financial and technical resources or other programs. When ACRE clients receive direct, non-dilutive financial support from NYSEDA (in which NYSEDA does not take an equity stake in the company), it enhances the credibility of the early-stage company and de-risks another funder's investment; both can open doors with partners and may make other funders more likely to invest.

NYSEDA indirectly supports the incubator clients via its support to ACRE. A key activity NYSEDA requires of ACRE in their work with clients is to have each develop a "Milestone Plan" similar to a business plan that allows the companies to establish goals, think through what they will need to gain market entry, and what support the incubator needs to provide. These plans represent an example of the intellectual capital that NYSEDA provides to help these companies succeed, and as such the plans are reviewed in face to face meetings with the ACRE director and revised every six months to track progress. Clients report that the self-defined goals in these plans are extremely valuable in focusing their work.

1.2 Overview of Selected ACRE Clients

The three ACRE clients selected for this case study are a cross-section of clean energy innovators who work with ACRE. The clients' solutions help renters, homeowners, and larger-scale property managers. ACRE and NYSERDA noted that these companies are illustrative of, but do not fully represent the experiences of all ACRE clients.

DANDELION ENERGY: After evaluating hundreds of ideas for clean energy, ground-source heat pumps (GSHPs) stood out to Dandelion Energy as a viable opportunity because GSHPs save homeowners money on their heating bills and make progress toward climate goals. Dandelion Energy developed and patented technology for drilling GSHPs that could fit in small areas and reduce the drilling time from four days to one day. They joined ACRE in January 2018, and while there, developed an innovative business model using a project financing mechanism, so homeowners pay a monthly fee instead of the entire up-front cost, which reduced the biggest barrier to improving homeowner access to GSHPs. They graduated from ACRE in October 2018.

Photo by Dandelion Energy



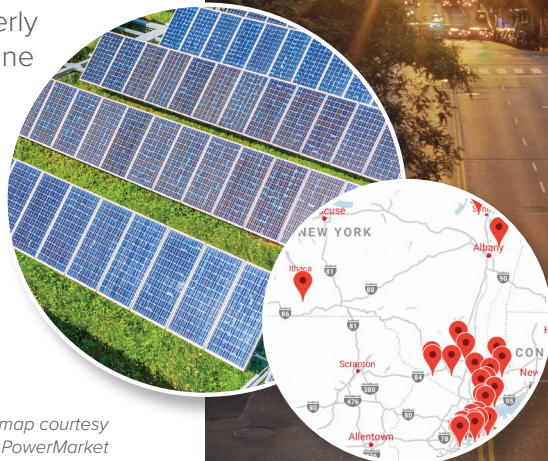
MAALKA: The entrepreneur behind Maalka recognized that organizations and cities were struggling to manage their large-scale sustainability initiatives. Maalka developed a software platform that allows property managers and cities to manage building performance data; environmental, social, and governance (ESG) criteria; and utilization data across their expansive portfolios. According to ACRE staff, the Maalka team are “data analytic geniuses,” helping to make data interpretable and actionable. Maalka has worked with more than 20 clients nationally and internationally. Maalka began at ACRE in January 2017 and is still a tenant.

Report by MAALKA



POWERMARKET: PowerMarket began when its entrepreneur recognized the utility industry's systems and processes for accessing billing data were overly manual and out-of-date. PowerMarket built an online marketplace to connect community renewable energy projects, such as community solar, with small-scale, individual customers. This innovation improves individuals' – and particularly renters' – access to renewable energy, enables community solar programs to function efficiently, and is a catalyst to help clean energy suppliers and customers embrace the clean energy transition. PowerMarket began at ACRE in April of 2014 and graduated in December of 2019.

Marketplace map courtesy of PowerMarket



2 Findings

ACRE has seven full time and one part time staff members. Since working with NYSERDA, ACRE has hosted 58 client companies and 32 of those have graduated. To graduate, a company must meet several requirements including becoming a certified business entity (for example, an LLC, C-Corp or S-Corp), establishing a management team, securing funding to operate for 12 months, and demonstrating traction from customers. Client tenure varies, though the average is two and a half years. Together, ACRE's client companies have received \$667M in non-NYSERDA funds since 2009.

2.1 ACRE Is the “Place to Be”

ACRE offers a variety of resources and services to support entrepreneurs as they develop their product and business and have developed quite a reputation along the way. As Eric Dahnke, PowerMarket CEO, described it, “ACRE is the place to be” if you're going to do a clean energy startup in New York.

2.1.1 Reputation and Staff

ACRE and its staff have earned an excellent reputation thanks to their ability to help early-stage companies make meaningful progress. The high-caliber staff have in-depth knowledge of the clean energy landscape, are aware of market opportunities and resources, can connect client companies with market actors, and offer excellent advice. NYSERDA reports that ACRE staff successfully identify a company's specific needs and connect them with the right resources. For example, ACRE advised Dandelion Energy as they explored participation in utility programs.

ACRE's vetting when selecting their companies is a thorough and critical pre-screening step that validates a company's

potential. That groundwork leads investors to feel comfortable working with ACRE's startup companies, as evidenced by a story ACRE's Managing Director, Pat Sapinsley, heard from one of their startup companies who was pitching an investor: the investor was heard to say, “Go to the ACRE incubator. If they accept you, I'll look at it.”

2.1.2 Networking: “They're the ultimate connectors”

Arguably the most important service ACRE provides clients is networking and introductions to industry contacts. The networking services put the companies in contact with potential customers and others who provide valuable industry feedback on the product, are willing to iterate on it, and help develop the key value proposition that differentiates the product. The connections ACRE makes for its clients connects them with funding and grows their business.

ACRE hosts events throughout the year, which provide opportunities for client companies to connect with industry representatives. They also connect them with internship programs, funding opportunities, and speaking engagements to help them spread the word about their innovations.

ACRE's informal networking activities are equally valuable. ACRE hosts “office hours,” during which market actors visit ACRE and meet the client companies. These actors may be investors, potential customers, or channel-to-market partners. Maalka pitched to a visitor during ACRE office hours which led to landing a world-class anchor client that enabled Maalka to approach other global organizations more effectively. Rimas Gulbinas, Maalka CEO, said that “The amount of interactions we get with private industry through ACRE is unparalleled.”

2.1.3 Internal services

ACRE also provides access to professionals, services, and equipment that can be expensive or difficult for an entrepreneur to obtain otherwise.

- **PITCH COACHING:** Effectively pitching a new product is an integral skill entrepreneurs must develop to earn industry interest and investment. ACRE clients practice ensure their product pitches for the ACRE staff and pitch coaches. The feedback and practice ensure their message is clear and simple and that the amount of data and information is not overwhelming; one interviewed client described the value of the pitch practicing as “tremendous.”
- **DESIGN:** ACRE has an in-house designer who helps format and design the clients’ customer-facing literature, website, and slide decks. Having clean, professional-looking materials to convey the product’s strengths can make a big difference in gaining market interest. This service is reportedly unique to ACRE and is not available at other incubators.
- **LEGAL ADVICE:** ACRE has an attorney on staff who provides the client companies with legal advice. One interviewed entrepreneur said this resource was “very valuable” because “when you’re in that early stage, you may not have the resources to pay an expensive lawyer like that.”
- **ADVERTISING JOB OPPORTUNITIES:** ACRE helps connect its client companies with employees by advertising client companies’ job offerings on the ACRE website and in its newsletter with 5,000 recipients. ACRE also maintains a repository of resumes that the startup companies can review when looking to hire.

2.1.4 Access to office space and equipment

ACRE provides access to premier office space and office equipment, such as a computer network, printers, phones, and faxes. This necessary infrastructure can be costly, especially in New York City. Kathy Hannun, President of Dandelion Energy, commented on how advantageous it was to be at ACRE: Having office space in an “easy to access part of New York City that we couldn’t have afforded otherwise allowed us to present ourselves as a real company to prospective employees and start to build our business in an affordable way.”

If a client needs equipment ACRE does not have on hand, they will find a way to supply it. A recent example was when a client company needed a fume hood to work with chemicals. The ACRE staff connected them with university leadership to access appropriate lab space. ACRE staff were also reportedly working on finding a user interface professional to assist one of the client companies who was having difficulties with their website. ACRE management reported that “between all of us, if we combine our contacts, we can find someone [to provide what our clients need].”



2.1.5 Internal office culture

The interviewed client companies emphasized that the ACRE office culture and dynamics also contribute to the success of its companies. Besides being “a fun place to be,” there is pressure to succeed. As the client contact noted, early entrepreneurs can sometimes take it easy when they are their own boss, but that does not happen at ACRE. ACRE has formal milestone meetings every six months where clients measure their progress against where they wanted to be, and staff figure out what help is needed to get them there.

Having “a collection of early-stage energy startups physically in the same space,” as one interviewee put it, creates synergistic benefits as the startup companies learn from and encourage one another. For example, one client asked the ACRE staff about that status of an energy regulation. The staff knew another company had done in-depth research on the regulation’s history and direction and connected the two companies. The first company got their question answered thoroughly and accurately thanks to their fellow ACRE tenant.

The synergistic effects can occur subtly, too. Eric Dahnke, PowerMarket CEO, described “an

emotional or psychological support you get when you’re together with other people in the same boat, and you see those other people endeavoring and working hard.” The social and psychological benefits of regularly interacting with other ambitious clean energy entrepreneurs is another advantage of being an ACRE client.

2.2 Select ACRE Client Achievements

The sections below highlight the economic, environmental, and social benefits achieved by the three interviewed ACRE clients.

2.2.1 Economic benefits

All interviewed client companies increased their staffing levels since they began with ACRE (Table 1). Access to ACRE’s office space and resources allowed startups to portray themselves as real companies, making it easier to attract and retain employees. For one company, their residency at ACRE led them to hire someone locally in New York State so they could be at ACRE regularly. Together, these three client companies offer the equivalency of full-time work (FTE) to 108 individuals in New York.

Table 1 | Staff FTE of Select ACRE Clients

Company	Staff FTE When Joined ACRE	Current Staff FTE	Current Staff FTE in NY
Dandelion Energy	3	97	91
PowerMarket	1	15	15
Maalka	4.5	9	2
Total	8.5	121	108

The client company representatives reported high retention of their current staff. Maalka’s first employees, which joined in 2015, are still with the company today. The others reported that nearly all of the people they hired still work for them. The jobs created at these companies are well-paid, with Dandelion Energy and PowerMarket

reporting an average salary of their hired staff at \$75,000 and \$90,000, respectively.

PowerMarket had about \$3.5 million in sales in 2019 and \$1.4 million in 2018, while Dandelion Energy earned more than \$20 million in sales in 2019. Maalka did not provide sales information.

The client companies together attracted more than \$37 million of investments to develop their businesses. Dandelion Energy accounts for much of that, which was received from venture capital

sources. PowerMarket and Maalka each received more than one million dollars of development funds from NYSERDA and the Department of Energy (DOE).

Table 2 | Investments for Business Development to Date

Company	Total Amount	Sources
Dandelion Energy	\$35M	<ul style="list-style-type: none"> All from venture capital
PowerMarket	\$1.25M	<ul style="list-style-type: none"> \$150,000 Phase 1 Small Business Innovation Research (SBIR) Grant from DOE \$1M Phase 2 SBIR Grant from DOE \$100,000 from NYSERDA (unspecified)
Maalka	\$1.35M	<ul style="list-style-type: none"> \$1.15M SBIR Grant from DOE \$200,000 Ignition Grant from NYSERDA

While at ACRE, the ACRE client companies deferred expenses that they otherwise would have had to pay to develop their businesses. Chief among them were the office infrastructure and services, such as the desk and conference room space, telephone and fax system, and printing capabilities. One client conservatively estimated that they would have had to spend \$20,000 per year to acquire similar space and services. The clients also mentioned not having to spend funds to learn about and attend events where they gain industry exposure, find customers, and get market feedback. One interviewed client reported they otherwise would have had “to spend capital continuously to do those activities.”

- The hundreds of homeowners who installed a GSHP through Dandelion Energy can each expect to save 200 tons of GHG emissions over the system’s lifetime.
- Each customer accessing community solar through PowerMarket saves 10% on their energy bills, amounting to a total of \$100,000 in annual bill savings.
- The energy savings derived from using the Maalka platform depend upon the building portfolio’s size and type. Maalka reports that, on average, buildings have positive return on investment projects that equate to roughly 25% of their energy use intensity (EUI). With the average commercial office building having an annual EUI (kBtUs / sqft.) of 53, by utilizing Maalka, roughly 13 kBtUs / sqft can be eliminated from business-as-usual operations. Maalka provided the following energy savings estimates for buildings of different sizes (Table 3):

2.2.2 Energy and Environmental (GHG) Benefits

Property owners and renters are saving on their energy bills and reducing their GHG emissions.

Table 3 | Estimated Energy Savings Using Maalka by Portfolio Size

Building(s)	Est. Annual Energy Use	Annual Energy Savings	Annual Dollar Savings
Small Office Building (100,000 sq ft)	1,553 mWh	381 mWh	\$76,200
Large Office Buildings (1,000,000 sq ft)	15,500 mWh	3800 mWh	\$750,000
Large Company Building Portfolio (15,000,000 sq ft)	235,000 mWh	47,000 mWh	\$11,500,000

2.2.3 Other Non-Energy Benefits

Maalka also provided information on human capital savings organizations can realize by using their platform. One of their customers

with a 200-building portfolio saved \$195,000 per year in staffing costs by streamlining data collection, data validation, data analysis, and financial review via Maalka.

2.2.4 Equity Benefits

The selected companies' products and services make clean energy, energy savings, and green jobs accessible to New Yorkers of diverse backgrounds.

- Dandelion Energy's innovative business model uses financing to make space heating and cooling affordable for homeowners of all social and financial backgrounds. Many of their employees come from lower-income communities, contributing to a socioeconomically diverse company. One of Dandelion Energy's four facilities is in Peekskill, New York, much of which is designated as an environmental justice community, contributing to the economic development of that area. Furthermore, this focus on lower-income communities aligns with NYSERDA's implementation of such legislation as the Climate Leadership and Community Protection Act (CLCPA) which will, among other provisions, target investments that benefit disadvantaged communities.
- PowerMarket ensures that a certain percentage of their customers, or of their MWs supplied, go to individuals from low- to moderate-income communities, helping them save on their energy bills and improving those groups' access to clean energy.

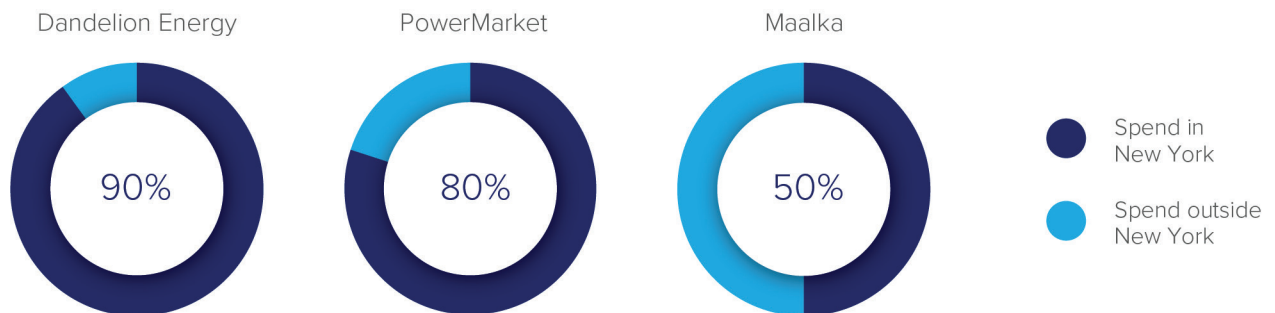
- Maalka works with several organizations whose missions include serving lower-income communities. For example, Maalka works with the Green Schools Alliance in support of the United Nations sustainable development goals and the Green Building Alliance in Pittsburgh to support them as they manage water, waste, and carbon emissions. If the opportunity arises, Maalka is interested in hiring talented individuals from low-income or environmental justice neighborhoods.

2.2.5 Economic Development Benefits

The two interviewed client companies that graduated from ACRE have established their businesses in New York State. Dandelion Energy has four facilities, all of which are in New York, including their corporate headquarters and three warehouses. PowerMarket has one facility, which is also in New York. Maalka reported no facilities, which, they said, is one reason why they are at ACRE.

Two of the three interviewed ACRE clients plan to spend the large majority of their funds in New York, and the third plans to spend about half in New York (Figure 2). The representatives estimated the percent of all company funds that have been or will be spent in New York, including funds spent on operations, capital investment, and any acquisitions.

Figure 1 | Percent of Company Funds Spent in New York



3 Summary

Together, NYSERDA and ACRE foster the next generation of clean energy entrepreneurs. ACRE, with its highly connected staff and dynamic office culture, contributes to the success of clean energy startup companies. Those companies

help New Yorkers save energy, save money, and reduce their GHG emissions while creating jobs and attracting investment funds to help New York achieve its energy vision.