

Research Performance Final Report (RPFR) for DOE/EERE

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This Final Southwest Regional Clean Energy Incubation Initiative (SRCEII) Report is submitted to fulfill the requirements of Subtask 3.3 of the Statement of Project Objectives for DOE Award Number: DE-EE0006654.

The Austin Technology Incubator's (ATI's) Clean Energy Incubator at the University of Texas at Austin (ATI-CEI) utilized the National Incubator Initiative for Clean Energy (NIICE) funding to establish the Southwest Regional Clean Energy Incubation Initiative, composed of clean energy incubators from The University of Texas at Austin (UT-Austin), The University of Texas at El Paso (UTEP), The University of Texas at San Antonio (UTSA), and Texas A&M University (TAMU).

Project Objective: SRCEII's goal was to increase the number of successfully incubated clean energy companies, jobs, dollars of clean energy investments, pipeline of prospective startups, and overall economic development. The way SRCEII achieved these goals was by testing, refining, and implementing best practices through a network of incubators located near pipelines of innovation (universities and national labs), major customers (the U.S. Army and Air Force), and prospective strategic partners (the energy industry) in the Southwestern United States. The goal was achieved through 4 initiatives: Align ATI-CEI with Best Practices, Drive Best Practices at TAMU, UTSA and UTEP, Synthesize Best Practices, and Develop a Sustainability Plan.

Background:

Over the contract duration, the SRCEII network collectively reviewed 231 companies, admitting 24 into incubators. Nine member companies graduated during this timeframe while only 4 were dropouts. Member companies raised just over \$19 Million over the three year period. SRCEII incubator partners made introductions to 179 investors on behalf of portfolio companies and hosted 158 events. The network also made 32 introductions to economic development agencies and participated in 89 university engagement activities. In aggregate, the network boasts a total of 408 mentors ready to

METRIC	SRCEII Total
Firms Reviewed	231
Firms Admitted	24
Firms Graduated	9
Dropout Firms	4
Member Company Fundraising	\$19,199,000
Mergers	1
Acquisitions & IPOs	1
Investor Introductions	179
Hosted Events	158
Mentors	408
Introductions to Economic Development Agencies	32
University Engagement	89

assist with specific domain knowledge applicable to Clean Energy companies. These metrics demonstrate the great success of the SRCEII program on a quantitative level; there were many qualitative successes as well that are difficult to measure but play a key role in the success.

This report is organized below to specifically address each of the tasks outlined in the Statement of Project Objectives for award number DE-EE0006654.

Task 1: Align ATI-CEI & PSI with Best Practices

Through its 16 year history, ATI-CEI has originally adopted a set of internal practices that closely aligns with the best practices described in the FOA. The primary hypothesis of the original proposal was that two critical best practices may be underweighted in the FOA synthesis; *high selectivity for incubator admissions* (i.e., a high ratio of applicants to admitted companies, with admissions based on extensive due diligence), and a *strong focus on preparation for success in capital markets*.

Subtask 1.1: Alignment with Incubator Best Practices and Metrics

ATI-CEI coordinated with the national Incubator network and the Electric Power Research Institute (EPRI) to define state-of-the-art metrics. The data collection process was updated during the course of this project to align with the metrics developed. Below are examples of activities performed in support of this subtask.

Milestone 1.1.1 Align metrics with national organization

ATI-CEI held initial conversations with PSI, SRCEI partners, and the national organization to identify opportunities for data collection and best practices identification. The metrics utilized throughout the project are Firms Reviewed, Firms Admitted, Firms Graduated, Dropout Firms, Member Company Fundraising, Mergers, Acquisitions & IPOs, Investor Introductions, Hosted Events, Mentors, Introductions to Economic Development Agencies, and University Engagement.

Milestone 1.1.2 SRCEI vetting process aligns with industry best practices

ATI-CEI hosted a Year One workshop in August 2015 that served as an excellent opportunity to convene the partners and expand the network beyond the initial institutions included in this grant. In addition to working with partners at UTSA, TAMU, Pecan Street, and The Hub, ATI-CEI is now in regular contact with at least six other institutions across Texas who are interested in developing clean energy incubation programs. Partners have been identified at UT-Arlington, Texas Tech, Rice, University of Houston, and Texas State University. This workshop addressed alignment of vetting process with industry best practices.

Milestone 1.1.3 Develop marketing plan for SRCEI and launch campaign

A SRCEI marketing plan was originally planned for completion in October 2015, however, it was delayed and ultimately completed and launched in November 2016 along with the sustainability plan. Clear, consistent, and ongoing communication was established between ATI-CEI and a PR firm that is providing in-kind services to the SRCEI network. The initial PR push was scheduled to coincide with the Three Day Startup event and Smart Cities Conference in 2016.

Subtask 1.2: Develop Testing & Validation Support Services

SRCEll developed a technical prototype, demonstration, testing and verification tools with Pecan Street, Inc. An additional partnership was formed with the Southwest Research Institute to provide additional technical analysis capabilities for SRCEll cleantech startups. Near the conclusion of this project, SRCEll also provided a cleantech Build4Scale manufacturing workshop in tandem with the Lawrence Livermore National Laboratory and taught by a faculty member from TAMU.

Milestone 1.2.1 Conduct Pilot Test on one company with Pecan Street Inc.

Five ATI-CEI companies completed a project or are currently working with PSI on an ongoing basis: Capstone, Enervalis, Bractlet, Atom Mines and Yotta Solar. Bractlet expanded the scope of services they are contracting with PSI to deliver as a result of the support they have received through the SRCEll funding. PSI is now actively involved in product design, testing, and support through the UL certification process.

Milestone 1.2.2 Full SRCEll roll-out of SRCEll-PSI Offering

A full SRCEll roll-out of the SRCEll-PSI offering was completed at the Year One Workshop and several additional companies have utilized this offering to test and further develop their technologies.

Subtask 1.3: Improve Funding Success Ratio and Funding Diversity for Incubated Companies

SRCEll partnered with Texas Venture Labs on a "Ready for Funding" program as well as worked with communication professionals to improve company pitches, produce SBIR / Federal funding seminars, develop strategies for crowd-funding, and increase presence in other capital-rich geographies.

Milestone 1.3.1 One company completes "Ready For Funding"

This activity was completed at the Year One Workshop. Harlan Beverly of Texas Venture Labs also presented to member companies of the SRCEll network on the first afternoon of the Cleantech 3 Day Startup. The focus of the discussion was strategies for companies to pursue funding, and which sources of funding are the right fit for different companies at various stages in their development.

Milestone 1.3.2 Increased Funding rate by 15% vs. Baseline

The funding amounts for SRCEll companies increased 166% in year 2 over the year 1 baseline and 57% in year 3. As an example of funding diversity, RideScout, a graduate of ATI-CEI, was acquired by Daimler in September, making it the first auto company to move into the ride-sharing business. The company will remain a wholly-owned subsidiary of Daimler and will continue to grow its presence in Austin. This exit marks a diversification into transportation and mobility that also attracts new investors and corporate partners such as Daimler.

Subtask 1.4: Increase Pipeline of Incubated Companies

The team worked to expand its pipeline of incubated companies with an emphasis on startups sourced from SRCEll member companies; strengthening connections to Key UT innovators and labs was central to this task. Another key program element was the creation and development of a Clean-Energy focused 3 Day Startup event. As a result of these events, ATI has recently admitted two cleantech companies (ShowerStream and Yotta Solar) that initially formed at a 3 Day Startup event. Success with this

program has become a foundation block for the SRCEI network sustainability plan. The SRCEI network also participated in the following events and activities designed to increase the pipeline of incubated companies.

- ATI-CEI coordinated the SXSW Eco Showcase application process (250 applications) in preparation for the SXSW Eco pitch event.
- South Central CleanTech Open Regional Finals / One Shell Plaza
- Clean Tech Open Global Forum – San Francisco
- Rice Clean Energy Forum

Milestone 1.4.1 Develop Spreadsheet of Key UT Innovators and Labs

The “UT Asset Inventory” identifying key UT innovators and labs was developed, distributed, and submitted via a spreadsheet in December 2014. This task was expanded to include labs and innovation assets statewide.

Milestone 1.4.2 Host Clean-energy Focused 3-Day Startup Event

A Statewide Cleantech Three Day Startup was conducted in Austin during the weekend of June 3-5, 2016. Over 65 aspiring entrepreneurs from across the state applied to participate, and a diverse mix of 40 participants ranging in age from 19-55 were selected to spend their weekend pitching ideas, forming teams, and crafting innovative cleantech startups.

On Day 1 of the event, 27 different ideas were pitched by participants. After the votes were tallied, 6 teams formed around themes as diverse as an e-bike retrofit kit, a microgrid in a box, a smart shower head for hotels, an app to prevent food waste, energy generation from industrial wastewater, and smart trash cans paired with education programs to sort waste and prevent littering.

On Day 2, the teams went into the community to conduct customer interviews in the morning and spent the afternoon workshoping their companies with feedback from a robust community of mentors. Over the course of the weekend, 17 on-call experts made themselves available for 38 hours of interviews, and 24 mentors were on-site for a combined 78 hours of mentoring.

On Day 3, the teams scrambled to finalize their business models and pitches with even more mentor support. Each team then had the opportunity to pitch in front of a panel of esteemed judges from the community with a live audience of other participants, mentors, and community members.

Panelists (listed below) from Austin and across the state were brought in at the end of the weekend to provide expert feedback. A blog post and photos from the event can be found here: <http://cleantx.org/first-annual-cleantech-3-day-startup-success/>

- Preston James – Entrepreneur in Residence (EIR) – The University of Texas at Austin, Herb Kelleher Center for Entrepreneurship, Growth, and Renewal + Co-Founder/Chairman – E3 Angel Network
- Samuel Kim – Managing Partner at Bandgap Ventures
- John Paulos – Angel Investor
- Jason Bethke – President & CGO, Fathom

- Eddy Trevino – State Energy Conservation Office, Texas Comptroller of Public Accounts
- Neal A. Guentzel M.S., J.D. – Technology & IP Management Specialist, UTSA

Milestone 1.4.3 Increased Company Pipeline by 15% vs. Baseline

The network reviewed an impressive 81 cleantech companies during the first year of the program; several of the incubators were starting from zero cleantech companies. The SRCEI incubators reviewed 101 cleantech companies during the final year of the project representing a 25% increase over year one.

Task 2: Export Incubation Best Practices to SRCEI Clean Energy Incubator

UT-CEI served as a hub during the course of this project disseminating best practices identified by the EERE program office and the national organization to “spoke” institutions; these partner incubators then implemented these best practices on their respective campuses leveraging the unique capabilities across the entire SRCEI network. Best practices and notes from the NIICE meeting in DC were shared with SRCEI partners.

Subtask 2.1: Establish a High-Functioning Virtual Network

The team established a rhythm for monthly meetings and established data collection and reporting tools to aggregate network reporting metrics.

Milestone 2.1.1 First scheduled SRCEI conference call meetings

A monthly conference call among SRCEI partners was established for consistent virtual communication. SRCEI partners also met in Austin and established a calendar of quarterly gatherings.

Milestone 2.1.2 Use the communications tools to disseminate a list of traditional and non-traditional funding sources available to SRCEI.

ATI-CEI associates compiled a statewide funding resource guide for SRCEI network members which was distributed in December 2014. A detailed funding guide for Silicon Valley was also completed and was used to plan/coordinate a visit to Silicon Valley (Q1 2016) by ATI-CEI to raise awareness of the SRCEI network.

Subtask 2.2: Launch CEI at TAMU

ATI-CEI modified workshop content from prior launches at UTSA and UTEP to provide an on-site workshop at TAMU.

Milestone 2.2.1 Deliver Custom Workshop at TAMU

The workshop was hosted in April of the first year at TAMU, with representatives from Austin Energy, Ideal Power (an ATI-CEI graduate company), and ATI-CEI participating in a roundtable discussion. TAMU stakeholders brought a fantastic mix of innovators, community partners, utility representatives, and academic faculty to the table for this discussion and it was a highly productive conversation. This

deliverable was delayed one month due to staffing issues at TAMU, but ultimately was well-conceived and executed.

Subtask 2.3: Leverage Austin Ecosystem for Non-Austin SRCEI Members

The SRCEI network conducted several activities during the project to leverage the Austin ecosystem for non-Austin SRCEI members. These activities included partnering with CleanTX for participation in clean energy events and introducing SRCEI opportunities to Austin investors, mentors, and potential customers. Events at partner institutions are shared and discussed on monthly conference calls and resources, contacts, and knowledge are increasingly being shared among incubators. Notes from these calls have become increasingly valuable for the purposes of reporting and for on-boarding new staff across all three partner institutions.

Milestone 2.3.1 At least one company attends another SRCEI organization

Companies have participated in a number of events sponsored by SRCEI organizations not associated with their home campus. Most of these interactions have been around workshop training or pitch competitions. For example, ATI-CEI companies have participated in TAMU pitch events, UTSA companies have participated in the ATI-CEI SEAL accelerator, and UTEP companies participated in the Build4Scale manufacturing workshop hosted by ATI-CEI.

ATI-CEI Attended Tech Exposé event at The Hub on August 6th, 2014. The Hub invited all SRCEI partners, representatives from Sandia National Labs, Texas Tech University, UT Austin Office of Technology and Commercialization, the Austin Technology Incubator, and UTEP attended. The event included a private roundtable discussion on collaboration and bringing technologies to market. The CEI team participated in the event and had the opportunity to tour both the Kay Bailey Hutchinson Desalination Plant and Fort Bliss.

Task 3: Coordinate SRCEI with NIICE National Organization and Incubator Best Practices

Throughout this project, SRCEI coordinated and collaborated with EERE, the national organization, and the other incubators funded for this project to share learnings and refine best practices.

Subtask 3.1: Coordinate and Collaborate National Organization and Individual Incubators

Data has been collected from SRCEI partners and shared with DOE and EPRI on a quarterly basis throughout the grant cycle. SRCEI partners also share a narrative of their progress with ATI-CEI and DOE on a quarterly basis. Notes and slides from these calls have become increasingly valuable for the purposes of reporting and for on-boarding new staff across all three partner institutions.

The SRCEI network also participated in the SXSW Eco event October 6-8, 2014. The conference included a CleanTX Cluster Panel that included CEI Director Mitch Jacobson, as well as a SXSW Eco Startup Showcase featuring SRCEI member companies. During the conference, SRCEI members met with key DOE, NREL, and EPRI staff. These meetings included DOE Deputy Chief of Staff Jonathan Levy, DOE

NIICE / SRCEII coordination, NREL / EPRI – ATI LabCore Meeting, and a keynote address by Secretary of Energy Ernest Moniz.

Milestone 3.1.1 Conduct initial briefings to establish on-going support and data sharing
ATI-CEI attended the NIICE Kickoff Meeting sponsored by EPRI in Palo Alto, CA. Per Subtask 2.1 and following an initial meeting in Austin, the SRCEII team established a rhythm for monthly meetings and established data collection and reporting tools to aggregate network reporting metrics. The periodic reports and data were shared with the network and areas identified as best practices were exchanged. ATI-CEI conducted initial briefings to establish on-going support and data sharing among partners.

Milestone 3.1.2 Transfer final aggregate data to national organization
At the completion of each project calendar quarter, aggregate data was collected and reported to both DOE and EPRI as representative of the national organization. The data transferred was in compliance with the standard metrics established in partnership with both the SRCEII network and the national Incubatenergy organization.

Subtask 3.2: Analyze and Report Lessons Learned from SRCEII

Throughout the project, SRCEII collected and analyzed internal data and reported the findings to the national Incubatenergy organization as well as individual incubators.

Milestone 3.2.1 Delivery of interim lessons learned presentation / report
Interim lessons learned presentations were given on several occasions to different audiences. One presentation was given via webinar to the SRCEII network to share internally the lessons learned amongst the participating incubators. Additional presentations were given to the DOE program office during an ATI-CEI program review and the NIICE Incubatenergy national organization during a meeting coinciding with the ARPA-E Summit.

Milestone 3.2.2 Present learnings from SRCEII as a report
Per Milestone 3.1.2 above, aggregate data compiled for this final report will similarly be shared with the national Incubatenergy organization. The data transferred will be consistent with prior reporting and in compliance with the standard metrics established in partnership with both the SRCEII network and the national Incubatenergy organization.

Subtask 3.3: Final SRCEII Report

Milestone 3.3.1 Deliver comprehensive report on SRCEII effort
This final report serves to satisfy Milestone 3.3.1 and Subtask 3.3 and will be submitted to DOE prior to the project contract deadline for review.

Task 4: SRCEI Long-Term Sustainment

Subtask 4.1: Develop SRCEI Sustainability and Expansion Plan

Milestone 4.1.1 Develop SRCEI Sustainability Plan

The SRCEI network developed a sustainability plan that focused on three primary objectives: 1) Continued Communication and Data Collection, 2) Network Funding Support, and 3) Joint Pipeline Development efforts.

Subtask 4.2: Implement Sustainability

Milestone 4.2.1 Have approached 6 sources of long-term funding

The SRCEI network, per its sustainability plan, is pursuing long-term funding from a multitude of sources through differing programs. Specific funding sources targeted include the State Energy Conservation Office (SECO), Austin Energy, Wells Fargo, British Petroleum, Shell, Total, Blackstone Foundation, and the McNair Foundation. ATI-CEI recently renewed a contract with SECO that allows for partial SRCEI partner support with TAMU and UT Dallas. There are also plans to develop proposed legislation that would create an Energy Center funded through an electric utility public benefit charge that would support the SRCEI network as part of their activities. Austin Energy has committed funds to support the transportation incubator initiative that was created during this project. Several of the SRCEI members are also partnered on a proposal to the Wells Fargo IN2 program for funding of pipeline development activities; this is a direct follow-up to the success of the 3 Day Startup program developed as part of this project. Several corporate partners with venture investment subsidiaries that invest in cleantech have also been approached for financial support; these include BP, Shell and Total. The Blackstone Foundation has funded campus entrepreneurship activities for three network universities and we will be approaching the McNair Foundation to support a university entrepreneurship conference that reinforces the network created under this project.

Subtask 4.3: Create Clean Energy Manufacturing Resource Map

Milestone 4.3.1 Create draft of Clean Energy Manufacturing Resource Map

One of our SRCEI members, TAMU, was part of a team that was awarded DOE funding to establish a Build4Scale Clean Energy Manufacturing training network and develop resources. A draft resource map was created based on the resources provided within the network awarded and specific manufacturing resources in Texas.

Milestone 4.3.2 Create Final Clean Energy Manufacturing Resource Map

A final Clean Energy Manufacturing Resource Map was developed for distribution at our Build4Scale pilot training that was hosted by ATI-CEI in August 2017. The final map included the Build4Scale resources as well as those identified through partnerships with the Texas Manufacturing Assistance Center (TMAC), the Southwest Research Institute (SwRI), and Frog Design. These resources were distributed to the partners as well as all of the cleantech companies in attendance at the Build4Scale training.

Conclusions

The SRCELL project was an extremely successful endeavor in that it expanded the Cleantech ecosystem beyond Austin to all of the major universities and metro areas in Texas. In particular, the network has been effective at partnering to create pipeline building events, such as 3 Day Startup, that have proven to generate cleantech companies for future admission into our network incubators. In addition, the refinement of metrics and reporting has enabled the network and participating incubators to demonstrate success quantitatively and relate that story in a meaningful way to past and future funding sources. The network has also been successful in increasing the percentages of companies reviewed and the amount of investments into incubator cleantech companies. This is a direct result of project efforts to identify and engage with funding sources as well as implementation of best practices with regards to company admissions. In summary, this project has enabled the network to increase the ecosystem and pipeline of cleantech companies while simultaneously improving the selection and incubation practices to increase incidents of company successes.