

The background of the cover is a black and white photograph. On the left, a man wearing a white hard hat, safety glasses, and a high-visibility vest is holding a thick black cable. On the right, there is a circular charging station mounted on a pole. The station has a "pf" logo and text that reads "OPTIMIZED BY POWERFLEX SYSTEMS ADAPTIVE CHARGING NETWORK". It also features a "START" button, a "STOP" button, and several status indicators. In the background, there are wind turbines and power lines under a clear sky.

WELLS FARGO INNOVATION INCUBATOR (IN²)

ANNUAL REPORT

2018



WELCOME

"One of the best things that IN² has done for us, is that it's provided an independent validation that our technology works. Being able to talk about this installation at NREL has made a huge difference in the way prospective customers view our offerings."

David Roe, Program Manager,
LiquidCool Solutions





TABLE OF CONTENTS

LETTER FROM THE DIRECTORS..... 4

ABOUT THE IN² PROGRAM..... 5

JOINING FORCES..... 6

IN² BY THE NUMBERS..... 8

WHERE WE ARE..... 10

PORTFOLIO COMPANY HIGHLIGHTS..... 12

PORTFOLIO COMPANIES IN THE NEWS..... 16

CHANNEL PARTNER AWARDS..... 18

WHERE WE'RE GOING..... 21

PROGRAM SPECIFICS..... 22

PROGRAM MANAGEMENT AND BOARDS..... 24

CHANNEL PARTNERS..... 26

PORTFOLIO COMPANIES..... 28

LETTER FROM DIRECTORS

It has been another remarkable year for the Wells Fargo Innovation Incubator (IN²), now a \$30 million program. Round 4 of the program added five new early stage technology startups to the portfolio, bringing the total to 25 companies in the program to date. From microgrid and demand response power systems, thermal energy storage to electrochromic glass, these technologies are aimed toward providing innovative buildings solutions for an energy-efficient world.

IN² continues to attract high quality applicants and the technology incubator model we once envisioned is now more than ever proving to propel companies forward—participating companies have been acquired by successful clean-technology corporations, received follow-on funding for next level projects, and have conducted field demonstrations. We are enthusiastic about the opportunity to advance these early stage technologies, as well as offer real-world test conditions to optimize their potential for success in the market.

In 2017, we piloted the IN² Channel Partner Awards Program and awarded more than \$1.3 million to help build the clean-energy innovation ecosystem. These funds supported more than 33 events and trainings, as well as eight larger strategic initiatives with 19 partners including:

- establishing standards for measuring the impact of cleantech incubator portfolio companies
- tackling what is holding back Colorado's science and technology ecosystem
- disrupting the current partnering and investment model for bringing new technologies to market with artificial intelligence.

Additionally, IN² was recognized with Global Green's Resilience Award at the 15th Annual Global Green Pre-Oscar Gala. The program was lauded for its role in creating a platform to speed the path to market for clean technologies. Lisa Laughner, president and CEO of Go Electric, Inc., accepted the award on behalf of IN².

We look forward to continuing our expansion to support innovations and partnerships aligned with supporting smart and connected communities of the future. Commercial buildings will remain the cornerstone of the program as we expand to support entrepreneurs in new verticals, such as transportation, residential, and food systems, which will lead us to a more sustainable future.

Sincerely,



Richard Adams

Director, Innovation and
Entrepreneurship Center at NREL



Mary Wenzel

EVP, Head of Sustainability and Corporate
Responsibility at Wells Fargo

ABOUT THE IN² PROGRAM

Entrepreneurs are the agents of change bringing to market disruptive solutions for energy usage, food and water consumption, quality of life, and carbon emissions, among numerous other factors. However, critical gaps and challenges often hinder the ability to see these solutions reach their full potential. These gaps include the so-called “valleys of death,” during which the funding requirements of the developing enterprise are not well matched by available financing resources. The valleys of death have proven especially challenging for energy-related companies that sell into highly capital intensive, project-based markets or to regulated customers that may have a slower rate of new technology adoption.

To address these challenges, the Wells Fargo Innovation Incubator (IN²) is a unique technology incubator and platform facilitating commercialization and adoption of clean energy technologies. Funded by the Wells Fargo Foundation and co-administered by the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), IN² began as a \$10 million program in 2014 with a focus on supporting commercial buildings-related clean technologies and startups. By offering non-dilutive grants, technical expertise and assistance to support technology development, testing and validation, field testing opportunities, and ongoing connections to organizations across value chains, including the investment community, IN² aims to help de-risk technologies and ease their path to market adoption and deployment.

Based on the success of the IN² model, in 2017, IN² received an additional \$20 million from the Wells Fargo Foundation enabling the program to expand its focus and grow its ability to support innovations and partnerships in the cleantech ecosystem.

IN² is an invitation-only program that works with its Channel Partners, consisting of incubators and accelerators, to refer companies to the program. See page 22 for more details on our process.



JOINING FORCES



Wells Fargo: The IN² program started as part of Wells Fargo's 2020 Environmental Commitment that includes providing \$100 million to environmentally-focused nonprofits and universities from 2012 through 2020. One of the drivers to launch IN² was to create an ecosystem that fosters and accelerates the commercialization of promising commercial buildings technologies that can provide scalable solutions to reduce the energy impact of buildings. As a leading financial institution with nearly 90 million square-feet of real estate around the globe and broad geographical footprint, Wells Fargo is positioned to lead change by embracing innovation and supporting advancements in clean technologies to improve local communities and the environment. This program was developed to advance the commercialization of new sustainable technologies by validating them in the lab and then piloting them in select Wells Fargo locations.



"We've really taken great steps in terms of improving the technology. So, I feel very confident on the company's future and in large part because of our connections through this program."

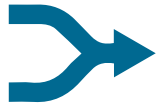
Oliver Davis, CEO/Founder, simuwatt



National Renewable Energy Laboratory: As the U.S. Department of Energy's (DOE) primary national laboratory for renewable energy and energy efficiency research, NREL gives U.S. entrepreneurs a competitive edge in the global energy race. Backed by 40 years of achievement, NREL bridges the gap from concept to market. As a core part of the mission, NREL is the only national laboratory that regularly links clean energy research and development (R&D) with real-world applications. NREL works with hundreds of partners and currently maintains over 700 active partnerships with small and large businesses, education institutes and non-profits, federal agencies, as well as state and local governments. NREL has developed a unique expertise in conducting incubation programs that accelerate the technology commercialization process, reduce technology risk and most importantly, utilize deployment and testing of technology in real world operating situations with end use customers to ensure a reduction in market risk. The lab leverages its extensive network of early stage technology companies, investors, incubators, accelerators and industry contacts to ensure a successful advanced energy technology development and deployment program.



IN² BY THE NUMBERS



MERGERS & ACQUISITIONS

Since joining IN², **4 portfolio companies** have seen successful exits in the form of mergers or acquisitions



25 portfolio companies

have each received up to \$250,000 in technical assistance and project related support



40+ Channel Partners

refer early-stage companies to the program and provide critical business mentoring and support



BETA DEMONSTRATIONS

5 portfolio companies have had beta demonstrations at Wells Fargo or NREL.

"Programs like IN² play a critical role in advancing early-stage technologies that provide scalable solutions to reduce energy impact and show the promise of a sustainable future."

Lisa Laughner, CEO, Go Electric



\$668K

in follow-on funding from
IN² has been distributed to
portfolio companies



\$103M

IN² portfolio companies have
gone on to raise \$103 Million
in follow-on funding from
external sources



OUR INVESTMENTS GO FAR

IN² companies raise nearly **\$17 dollars in external follow-on funding for every \$1** awarded.

WHERE WE ARE



FOUR APPLICATION & SELECTION ROUNDS

2014

July: Launch of IN²

September: Cohort 1 Call for Applications

December: Selected 4 companies to participate in Cohort 1

2015

July: Cohort 2 Call for Applications

November: Selected 6 companies to participate in Cohort 2

2016

June: Cohort 3 Call for Applications

December: Selected 10 companies to participate in Cohort 3

2017

April: Announced \$20 million expansion of IN² program at NREL Industry Growth Forum

August: Hosted IN² Summit at NREL to convene ecosystem and discuss program direction to best support smart and connected communities vision

December: IN² Awarded more than \$1 Million in cleantech grants to Channel Partners

2018

April: Cohort 4 Call for Applications

September: Selected 5 companies to participate in Cohort 4

September: Food, Energy, Water Nexus expansion announcement and strategic partnership with Danforth Plant Science Center

November: Cohort 5 Call for Applications

NEW PROJECTS



Ladybug Tools is a collection of computer applications that support environmental building design and planning.



Next Energy Technologies, Inc. (NEXT) is developing low-cost, printable, transparent coatings that are seamlessly integrated into windows, allowing for the harvest/conversion of light energy for use as onsite renewable power.



Yotta is developing a modular energy storage device, SolarLEAF™; battery storage integrated with photovoltaic (PV) installation designed to reduce cost and expand development of energy storage and grid resiliency on commercial buildings.



UbiQD, Inc. is a cleantech nanomaterials company that manufactures quantum dots (QDs) and polymer composites.



75F offers a vertically-integrated suite of wireless sensors, equipment controllers and cloud-based software delivering predictive, proactive building automation right out-of-the-box.

ACTIVE PROJECTS

Polyceed
7AC Technologies
EdgePower
Software Motor Company
APANA
Transformative Wave
Maalka
Ibis Networks

PowerFlex Systems
Heliotrope
NETenergy

COMPLETED PROJECTS

ESS, Inc.
ThermoLift
LiquidCool Solutions
VG SmartGlass
Whisker Labs
Go Electric
J2 Innovations
simuwatt
Geli

PORTFOLIO COMPANY **HIGHLIGHTS**



LiquidCool Solutions

Making Data Cool Again

With data centers consuming on average an estimated 70 billion kWh per year, a disruptive energy-saving solution is needed, and a liquid submerged server (LSS) technology from LiquidCool Solutions (LiquidCool) might be the answer. The server, contained in a sealed enclosure filled with a recirculating flow of an electrically non-conductive heat transfer fluid, recently succeeded in validation tests through the IN². The testing confirmed that the LiquidCool technology could not only maintain target temperatures under heavy computational load, but that the hot liquid could be used to heat buildings more efficiently than NREL's current solution.

Go Electric

Mission Accomplished for Resiliency and Renewable Integration

Go Electric, a provider of energy resiliency and microgrid solutions, completed validation testing at NREL. Go Electric developed an inverter, called LYNC DR, designed to provide an uninterruptible power supply that instantly synchronizes with the grid. The device underwent extensive testing to confirm four key capabilities: providing blip-less uninterruptible power; maintaining photovoltaics systems from tripping after a grid interruption event; compliance to IEEE1547 and Hawaiian Electric interconnection requirements; and demonstration of automated demand response dispatch. These capabilities ensure a facility has resilient power without any interruptions during a grid outage and from any energy resource, including renewables.

Maalka

Getting Ready for Market with a State-of-the-Art Energy Modeling Solution

Maalka's software platform automatically generates accurate building energy models for macro-scale management of resources like energy, water and waste, reducing the time and cost of accurately modeling and simulating large portfolios of buildings by more than 90 percent. Maalka was awarded follow-on funding from IN² to work to enhance their product offering and build a fully operational, cloud-based model articulation, calibration, and energy conservation measure (ECM) analysis application based off NREL's OpenStudio platform.



NETenergy

Store it Now, Use it Later. Testing Energy Storage Solutions

NETenergy's thermal battery provides a buffer of stored cool energy that can be charged during off-peak hours or during high PV generation periods. The stored energy can help meet thermal comfort requirements efficiently by reducing the traditionally required compressor size and cycling. It can also improve electric grid integrity by shaving electric load or shifting it to mid or off-peak periods. Through the IN² program, NETenergy is utilizing laboratory testing to validate performance and optimization based on temperatures, coolant types, flow rates, pressures, thermal profiles and specifications. NREL's experts and facilities are assisting with system integration, design and control of NETenergy's thermal battery to existing building AC systems in an effort to build a full-scale system in a commercial building.

PowerFlex Systems

Proving EVs and Buildings Can Work Together

PowerFlex Systems' IN² project is underway with the recent installation of a suite of 16 new electric vehicle (EV) charging stations at NREL's National Wind Technology Center (NWTC). The new stations are a win-win for both NWTC employees and PowerFlex, a service company that develops, deploys, and manages large-scale adaptive charging networks. Because the NWTC has a higher-than-average EV adoption rate, the new charging stations will provide valuable insight and data to PowerFlex, while proving the demand response control systems can reduce infrastructure costs and decrease impact on peak electrical demand for the campus.

Software Motor Company

Validating Super-Efficient, Internet-Enabled Motors

Software Motor Company (SMC) is revolutionizing the HVAC motor industry by combining low cost, high efficiency, built-in motor reliability, variable speed operation, and an IoT controller into a single system. Through the IN² program, NREL researchers have been testing and validating the energy efficiency and performance of the SMC technology under various operational scenarios. NREL has leveraged available industry intelligence including information from the Department of Energy's advanced RTU (rooftop unit) campaign to identify critical performance gaps that hamper the energy efficiency of these units.

PORTFOLIO COMPANIES **IN THE NEWS**



UtilityDive. September 12, 2017.

Go Electric Inc. was awarded a nearly \$500,000 contract for a demonstration microgrid project that involves installing the company's innovative battery energy storage system into the facility-wide microgrid at the Fort Custer Training Center in Michigan.

GreenTech Media. December 12, 2017.

Much safer than lithium-ion batteries, ESS, Inc. is developing all-iron flow battery technology that's not only safer but provides long-term energy storage. The company recently received \$13 million in funding to automate and expand the company's manufacturing facilities while increasing its annual production to 900 megawatt-hours



Globe Newswire. February 7, 2018.

Just Energy, a leading retail energy provider, acquired EdgePower to provide an innovative technological capability that will enhance commercial customers' experience and advance how the energy provider partner with customers to solve their changing energy management needs.

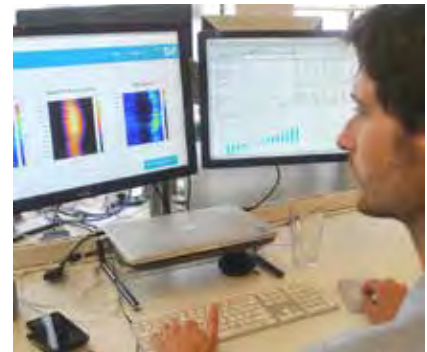
BizWest. February 28, 2018.

simuwatt beat out more than 120 applicants from 22 countries to win \$50,000 and space in the ACRE cleantech incubator program in the NYU Tandon School of Engineering 2017 Urban Future Competition. Photo credit: BizWest.



[Greentech Media. April 12, 2018.](#)

In order to take their battery control software to more people, Geli raised \$5.5 million in financing. The new funding is aimed at expanding Geli's work with key original equipment manufacturing partners as well as to expand into new markets like Japan, where the company is involved in a handful of virtual power plant pilots in development.

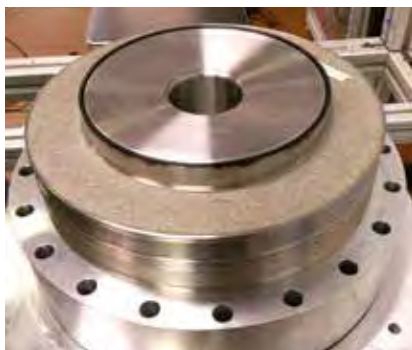


[GreenBiz. June 28, 2018.](#)

NETenergy presented at VERGE Hawaii on peak electricity and thermal energy storage to show how their thermal battery can disrupt a \$7.8 billion industry, saving building owners 30 percent or more on their energy usage. Photo credit: VERGE Accelerate.

[J2 Innovations. May 16, 2018.](#)

J2 Innovations was acquired by their longtime customer Siemens. J2 Innovations will be a wholly-owned subsidiary of Siemens Industry, Inc., and the company's FIN technology will continue to evolve as a powerful open framework for building, energy management and IoT.



[Newsday. August 9, 2018.](#)

As researchers and energy entrepreneurs aim to tackle the trillion-dollar energy use challenge, ThermoLift is working with others in Stony Brook University's Advanced Energy Research and Technology Center to develop a compact heat pump that operates as an air conditioner, heater and hot-water heater, providing a significant reduction in building HVAC costs as well as associated reductions in greenhouse gas emissions.

CHANNEL PARTNER AWARDS

The IN² Channel Partner Awards Program is a \$5 million initiative designed to develop a robust ecosystem of cleantech and sustainability-focused business incubators, accelerators, and university programs all serving as a pipeline of innovation for the IN² program.

In addition to their role in the technology incubator, Channel Partners provide business mentoring and support to companies and strengthen the cleantech ecosystem by addressing gaps in regional and nationwide clean-energy development and commercialization. These activities are supported in part through the \$5 million IN² Channel Partner Awards Program with non-competitive, competitive, and invitation-only funding opportunities. In 2017, \$1 million in Channel Partner Awards supported these strategic initiatives:



ROCKET FUND MIDWEST

The California Institute of Technology partnered with Clean Energy Trust to establish the Rocket Fund Midwest (RFMW), an interstate partnership bringing together sustainability-focused accelerators, utilities and universities in a community consortium, to help guide vulnerable Very Early Stage (VES) ventures through critical early stages. Pioneered in California, the Rocket Fund will offer a solution for one of the most intractable problems preventing cleantech innovations from reaching the marketplace – the lack of funding and necessary commercial partners for building, demonstrating and validating ‘pre-products’ in the real world.

CENTER FOR CLEANTECH ENTREPRENEURIAL EXCELLENCE

Carnegie Mellon University partnered with Northwestern University to launch a new Center for Cleantech Entrepreneurial Excellence (C2E2). The goal of the center is to better understand how cleantech/energy innovation and entrepreneurship differ from other technology sectors. At a regional level, C2E2 will examine key success factors in early-stage company development and how societal outcomes can be enhanced as a result.

Infinite Cooling from the Massachusetts Institute of Technology emerged as the top startup company in the 2018 Rice Business Plan Competition hosted by the Rice Alliance for Technology and Entrepreneurship.




FOOD-ENERGY-WATER GROWTH OPPORTUNITIES FOR IN²

Cleantech Group is leveraging its annual Cleantech Forum to capture key discussion points and identify themes to help further inform the direction of the IN² program as it considers expanding into the food systems space.

PREDICTING PARTNERSHIPS WITH ARTIFICIAL INTELLIGENCE

Activation Energy, in support of the Cyclotron Road program, is disrupting the current partnering and investment model for bringing new technologies to market – which relies heavily on human



networking – by developing a network leveraging Artificial Intelligence (AI) to identify a comprehensive list of strategic partners for emerging clean energy technologies. Working in partnership with Moxley Holdings and Rho AI, their model will identify future partners based on current investments, partnering trends, and natural language analysis of public statements.

COLORADO SCIENCE AND TECH SOLUTIONS

Innosphere, Colorado's leading non-profit technology incubator, is embarking on a multi-year plan called Scaleup Colorado to systematically address three specific problems holding back Colorado's science and technology ecosystem from growing at a higher rate and creating greater economic impact.

METRIC STANDARDS FOR INCUBATION IMPACT

Los Angeles Cleantech Incubator (LACI) partnered with ACRE, Clean Energy Trust, Greentown Learn, and NextEnergy to establish a standard for measuring and reporting the economic, environmental and social impact of the portfolio companies within their network. The team is leveraging LACI's Just Impact 2016 report and conducting individual research within organizations to evolve a common framework for training their staff and portfolio companies, and measuring and reporting on their individual impact results.

MOBILITY SYSTEMS IN SISTER CITIES

NextEnergy partnered with Prospect Silicon Valley to ensure that the cleantech potential of CASE (Connected, Autonomous, Shared, Electrified) mobility solutions are fully realized, by entering into a sister city partnership between Detroit and San Jose, to address two main challenges – connecting a cleantech innovation pipeline to industry players and market opportunities, and bringing private sector/industry partners together with government and NGO service providers to encourage a focus on serving low- to moderate-income market segments.

PROGRAM TO CATALYZE CLEANTECH

Rice University, the Austin Technology Incubator at UT-Austin, Texas A&M Engineering Experiment Station Clean Energy Incubator and Texas State University is collaborating on a series of programs and initiatives that will help catalyze the next generation of cleantech entrepreneurs and serve as a feeder to the IN² program. Referred to as "The IN² Bound Cleantech Accelerator Program," these programs will educate entrepreneurs and accelerate startups, and connect them to a network of experts to provide technical support and mentorship.

WHERE **WE'RE** GOING



In late 2017, IN² convened a Summit and brought together more than 150 stakeholders from across the country to discuss innovation in residential buildings, transportation, and the nexus of food, water and energy as keystones for building smart and connected communities of the future. The event celebrated the technological triumphs of our program's startups, featured engaging breakout discussions from cleantech leaders, and a shining keynote from Drawdown author, Paul Hawken (see photo on the left).

Based on a white paper analysis of the Summit findings and inputs from our various stakeholders groups, commercial buildings will remain the cornerstone of the program, but IN² will expand to support innovations in new technology sectors starting with agriculture and food systems. The Donald Danforth Plant Science Center has been engaged as a strategic partner to help further develop and validate promising agriculture technologies addressing critical sustainability challenges. The IN² program is uniquely positioned to further the development of technologies that reduce agriculture's carbon, energy and water impact.



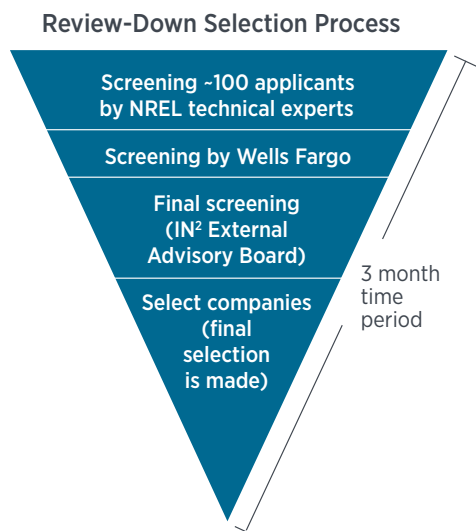
PROGRAM SPECIFICS



IN² Value Proposition to Startups:

- Up to \$250,000 non-dilutive award; including technical assistance from NREL and funding to company
- Opportunity to request follow-on funding for additional project work and funding
- Opportunity to beta test within the Wells Fargo buildings portfolio, NREL, and other strategic partners
- Networking and introductions to end users, customers, industry and the investor community

Invitation-Only Process: IN² fosters a network of Channel Partners to identify and refer companies to the program. IN² Channel Partners, consisting of incubators, accelerators and universities across the country, serve as ambassadors to the program and help their portfolio companies determine if IN² is a good fit for their current needs. Companies must work through one of these partners to be referred as an applicant to the program. If applying to the program is deemed appropriate, applicants are requested to provide information addressing their company profile, business plan, technology development status and future plans.



Review and Down Selection: IN² applications are first screened by NREL technical experts to determine the viability of the technology and energy impact, as well as program fit. After scoring technologies on their impact, a down-selected list is then reviewed and screened by the Wells Fargo IN² Board of Directors. This Board, representative of diverse lines of business and perspective within Wells Fargo, assesses applicants on their go-to-market strategy and value proposition. The IN² External Advisory Board, consisting of industry experts and professionals, performs the final screening and ultimately selects companies to invite to the program. The entire review and selection process from start to finish is typically completed within three-months.

Program Offering: Select early-stage companies are formally invited into the program where they receive up to \$250,000 in technical assistance from the laboratory and project related support. The IN² platform seeks to support various stages of emerging clean technologies categorize into three tiers:

Our goal is to help each tier meet critical milestones to help companies advance to the next stage - ultimately helping them in their quest toward commercialization. Over the course of nine to 24 months, participating companies have access to NREL's world-class facilities and researchers, who will test, validate, and incubate the companies' technologies to help them meet critical milestones on the path to commercialization.

- **TIER 1:** Bench Scale
TRL 1-5, Conceptual stage with physical proof that the concept may work
- **TIER 2:** Prototype
TRL 6-7, Prototype available for testing and validation
- **TIER 3:** Commercially Ready
TRL 8-9+, Production models available in limited quantity

Beta Demonstration: Following lab support for technological development and validation, the IN² program offers an opportunity for companies to test the commercial viability of their technology through a beta demonstration within the Wells Fargo Commercial Buildings portfolio or with another strategic partner. These demonstrations provide startups with a critical understanding of how their technology performs in a real-world environment. Beta demonstrations are a potential option for commercially-ready Tier 3 companies upon successful completion of their IN² project.

PROGRAM MANAGEMENT AND BOARDS

IN² Program Management: The IN² program management team at Wells Fargo and the National Renewable Energy Laboratory work together to help the IN² ecosystem grow and our portfolio companies succeed.

- **Ramsay Huntley**, Vice President, Clean Technology and Innovation Philanthropy Program Officer at Wells Fargo
- **E.J. Bernacki**, Vice President, Corporate Responsibility Communications at Wells Fargo
- **Richard Adams**, Director, Innovation and Entrepreneurship Center at NREL
- **Kate Moore**, Assistant Director, Innovation and Entrepreneurship Center at NREL
- **Trish Cozart**, IN² Program Manager, Innovation and Entrepreneurship Center at NREL
- **Domi Colegrove**, IN² Program Management Team, Innovation and Entrepreneurship Center at NREL
- **Kristin Field-Macumber**, IN² Technical Project Manager, Commercial Buildings Group at NREL
- **Kimberlee Ott**, IN² Program Management Team, Innovation and Entrepreneurship Center at NREL

Wells Fargo Board of Directors: This strategic board is comprised of executives and senior managers from Wells Fargo, representing more than a dozen lines of business, guiding the strategic elements of the program. Board members provide applicant feedback as well as subject matter expertise related to commercial buildings, sustainability, clean tech and environmental finance, legal, supply chain, government relations, and much more.

- **Fady Hanalla**, Counsel at Wells Fargo
- **Richard Henderson**, Executive Vice President, Head of Corporate Properties at Wells Fargo
- **Regina Heyward**, Senior Vice President, Head of Supplier Diversity at Wells Fargo
- **Akhlaq Khan**, Senior Vice President, Research and Development of Emerging Technologies at Wells Fargo
- **Barry Neal**, Executive Vice President, Co-Head of Renewable Energy and Environmental Finance at Wells Fargo
- **Puon Penn**, Executive Vice President, Head of Technology Capital at Wells Fargo
- **Molly Porter**, Senior Vice President, Community Relations at Wells Fargo
- **Jon Previtali**, Director of Technology and Technical Services at Wells Fargo
- **Curt Radkin**, Senior Vice President, Corporate Properties Sustainability Strategist at Wells Fargo
- **Tim Rafalovich**, Senior Vice President at Wells Fargo
- **Matt Servatius**, Senior Vice President, Head of Global Cleantech Group at Wells Fargo
- **Julie Slocum**, Director, Federal Government Relations at Wells Fargo
- **Mary Wenzel**, Executive Vice President, Head of Sustainability and Corporate Responsibility at Wells Fargo

External Advisory Board (EAB): The EAB consists of industry and academic experts in the built environment space that provide insights and expertise in sector trends, challenges and opportunities in the buildings space, and a high level of technical understanding around building technologies, both traditional and emerging. They play a significant role in the IN² program, as they ultimately determine the technologies that are accepted into the IN² program.

- **Cara Carmichael**, Principal, Buildings, Rocky Mountain Institute (RMI)
- **AJ Dye**, VP, Technology Banking, Square 1 Bank
- **Brian Dunbar**, Executive Director, Institute for the Built Environment, Colorado State University
- **Michael Groppi**, PE, CEM, LEED Green Associate, VP Energy & Sustainability Programs, CBRE
- **Holley Henderson**, LEED Fellow, Founder H2 EcoDesign
- **Luke Leung**, PE, LEED® Fellow, Director of Sustainable Engineering, Skidmore, Owings & Merrill LLP (SOM)
- **Heidi Lubin**, Co-Founder, Modula S
- **Kevin Powell**, Green Proving Ground Program Manager, General Services Administration
- **Adam Semel**, Managing Director, Skidmore, Owings & Merrill LLP (SOM)
- **Meital Stavinsky**, Partner Holland & Knight
- **Brian Steel**, Co-Director, Cleantech to Market Program, Energy Institute at Haas, University of California Berkeley
- **Michael Turner**, Director, Commercial and Industrial Energy Services, Colorado Energy Office

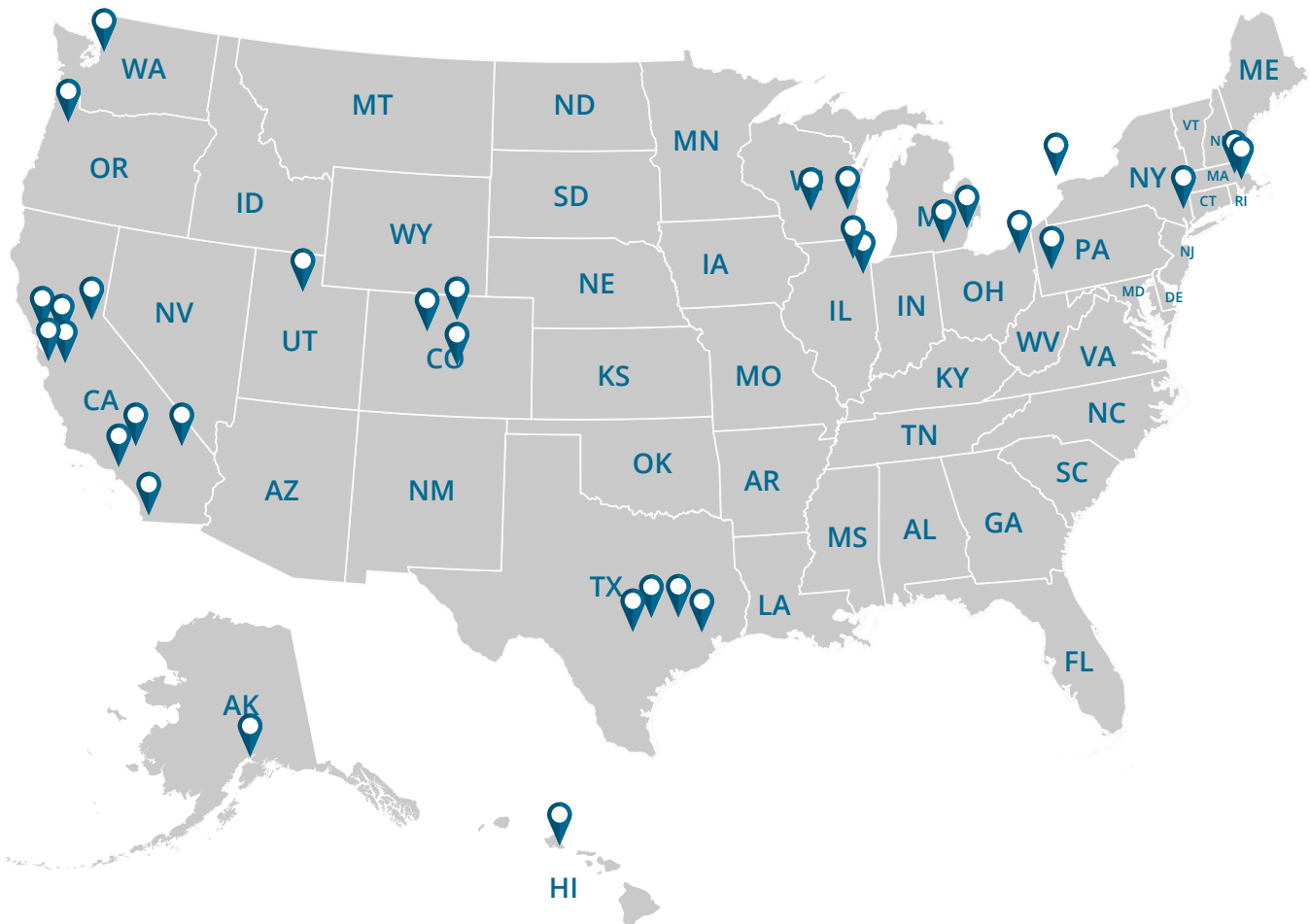


IN²'s External Advisory Board members

CHANNEL PARTNERS

Channel Partners: IN² Channel Partners are an ecosystem of more than 40+ clean-energy, cleantech and sustainability-focused business incubators, accelerators and universities who serve as the pipeline of innovation by referring companies to the program. Each application round, the IN² program relies on these critical partners to send their best and brightest to apply. A full list of our Channel Partners can be viewed on the right.

If you would like to learn more about the IN² program or our Channel Partner process, please contact Domi.Colegrove@nrel.gov.



OUR CHANNEL PARTNERS

ACRE New York, NY	Imagine H2O Inc. San Francisco, CA	Powerhouse Solar Oakland, CA	University of Colorado Boulder Boulder, CO
CalCEF San Francisco, CA	Innosphere Fort Collins, CO	Prospect SV San Jose, CA	University of Denver Denver, CO
Caltech, FLOW Program Pasadena, CA	Innovation Corridor Foundation Denver, CO	Rice University Houston, TX	University of Michigan Ann Arbor, MI
Carnegie Mellon University Pittsburgh, PA	Launch Alaska Anchorage, AK	Stanford, TomKat Center for Sustainable Energy Stanford, CA	University of Texas at Austin, Austin Technology Incubator (ATI) Austin, TX
Case Western Reserve University Cleveland, OH	Los Angeles Cleantech Incubator Los Angeles, CA	Sustainable Startups Salt Lake City, UT	University of Texas at Austin, McCombs School of Business Austin, TX
Clean Energy Trust (CET) Chicago, IL	MaRS Toronto, CA	Texas A&M Engineering Experiment Station Clean Energy Incubator (TAMCEI) College Station, TX	University of Washington Seattle, WA
Cleantech Group San Francisco, CA	Mass Challenge Boston, MA	Texas State University San Marcos, TX	University of Wisconsin-Madison, Wisconsin Energy Institute Madison, WI
Cleantech Open Los Angeles, CA	MIT Energy Club Boston, MA	The Water Council Milwaukee, WI	VertueLab Portland, OR
Coachella Valley Economic Partnership Palm Springs, CA	NextEnergy Center Detroit, MI	University of California Berkeley Berkeley, CA	
Colorado State University Energy Institute, Powerhouse Fort Collins, CO	Northeast Clean Energy Council (NECEC) Institute Boston, MA	University of California Davis, Energy Efficiency Institute (EEI) Davis, CA	
Cyclotron Road Berkeley, CA	Northwestern University Evanston, IL	University of California San Diego San Diego, CA	
Elemental Excelerator Honolulu, HI	Portland State University Business Accelerator Portland, OR		
Greentown Labs Somerville, MA			

PORTFOLIO COMPANIES

Round 1: These four companies were awarded into Round 1 of the IN² program in 2014 and began their work in early 2015.



The all-iron redox flow battery (IFB) from Energy Storage Systems, Inc. (ESS, Inc.) has the potential to provide safer energy storage at a lower cost relative to typical battery options.



Whisker Labs develops peel-and-stick energy submetering technology sensors that could reduce energy metering costs by 90 percent.



LiquidCool Solutions has developed a total immersion electronics cooling technology with the potential to offer 40 percent energy savings and significant cost savings compared with air-cooling technologies.



VG SmartGlass is developing a film-based light and heat control window insert called INVISIBLIND that could reduce the energy required to light and cool perimeter spaces by 30 percent compared with spaces without heat and glare control.

Round 2: These six companies were awarded into Round 2 of the IN² program in 2015 and began work in early 2016.



7AC Technologies' single-step, liquid desiccant technology offers the efficiency improvements needed to manage the increased greenhouse gas emissions expected from the rapid growth of air conditioning.

Go Electric

Go Electric provides the first integrated solution for uninterruptible power, energy storage, energy efficiency, and automated energy asset synchronization and optimization.



Heliotrope is developing a neutral-colored dynamic glass solution that independently controls light and heat transmission. This technology aims to achieve cost neutrality for conventional window solutions.



NETenergy, a thermal Energy Storage (TES) company, has created a thermal battery that stores energy to help large buildings control cooling costs.



Polyceed will deliver low-cost, wirelessly controlled, and multi-functional plug-and-play dynamic electrochromic (EC) window systems.



ThermoLift is developing a natural gas-driven heat pump and air conditioner that will replace heating, cooling and hot water systems with a single device.

Round 3: These ten companies were awarded into Round 3 of the IN² program and began work in early 2017.



The APANA™ System offers an innovative smart water management system to reduce water waste.



Designed to tackle the most challenging behind-the-meter energy issues for large commercial energy consumers, EdgePower's products include an on-site energy management gateway, site control software, a web-based user interface and customer site support services.



Geli provides a scalable, end-to-end energy storage software solution. Their platform is designed to achieve a vision of a world running on renewable energy.



Ibis Networks addresses plug load management with its patented IntelliNetwork System, enabling customers to save on energy costs related to managed equipment.



J2 Innovations empowers companies to derive value from the connected world. Their FIN (Fluid INtegration) Framework software combines the core functionality of a Building Automation System (BAS) for connecting and controlling devices, with the added benefits of a Building Operating System (BOS) to manage and leverage data.



Maalka enables cities and organizations to set cost-effective EE investment strategies and leverage powerful real-time measurement and verification to track the impacts of these investments across large portfolios of buildings.



PowerFlex Systems is a service company that develops, deploys and manages large-scale adaptive charging networks that enable mass charging and a greener building.



simuwatt is a web and tablet-based application for conducting rapid energy audits and analysis, resulting in energy savings.



Software Motor Company (SMC) is building a high efficiency internet-connected smart motor for HVAC applications.



Transformative Wave's technology and solutions act as an all-seeing-eye for fault detection, diagnostics and asset management.

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