



2019 NORTHEAST TEAMS

AeroShield

Aeroshield

www.aeroshield.online

Cambridge, MA
Green Building

Aeroshield has developed a highly transparent, super-insulating silica aerogel. The nanoporous glass is composed of 95% air. By placing Aeroshield between two panes of glass, performance is now competitive with triple-pane windows at the cost and installation ease of a double-pane. This makes for a window 50% more energy efficient than 80% of windows installed in today's homes. **2019 CTONE Winner**

ANAX POWER

Anax Power

www.anaxpower.com

Morristown, NJ
Energy Generation

Today, natural gas flows through high-pressure pipelines at a pressure that exceeds a usable level for consumers, businesses, and power producers. Thousands of regulating stations use outdated, inefficient valves to reduce the gas to the appropriate outlet pressure, wasting a significant amount of energy in the process. The Anax Turboexpander Generator captures this wasted energy and converts it into clean, distributed power. Because there is zero combustion, customers reduce their carbon footprint while saving resources.

anessa BIOGAS SOFTWARE

Anessa Biogas Software

www.anessa.com

Fredericton, Canada
Energy Generation

Anessa has developed a model of an anaerobic digester with the ability to accurately predict the performance of the digester given a broad range of mixed organic waste materials that can be processed. With the creation and optimal operation of anaerobic digestion plants, the cleantech sector will grow and more green energy initiatives will be encouraged.

APIS INNOVATION

Apis Innovation

www.apisinnovation.com

Bethlehem, PA
Information & Communications
Technologies

Inefficiencies found within the systems responsible for capturing biogas generated from landfill waste results in a \$1.3 billion U.S. market loss each year. Because of these inefficiencies, landfills release over 800 million tons of CO₂e emissions each year which is equivalent to the annual emissions from 174M passenger vehicles or 65% of the U.S. fleet. Apis hardware contains a variety of sensors that measure the performance of a gas well, a motorized valve, wireless communication technology, and a solar-battery power system. Cloud software utilizes a proprietary control algorithm and customer facing data visualization dashboard.



Aquaneers

aquaneersinc.com

Brooklyn, NY
Chemicals and Advanced
Materials

Carbon emissions have remained pervasive, growing 2.7% in 2018, from XX to 37.1 billion tons, with 90% of the emissions attributed to the utilization of fossil fuel sources. The constant increase in emissions has led to the advancement of technology to decrease dependency on fossil fuels or reduce atmospheric CO₂. As shifting to sustainability is most often not affordable, Aquaneers have developed a novel approach to using CO₂ with hydrogen and sunlight to synthesize methanol. By reducing the energy needed for methanol production and enabling the use of renewables to drive its synthesis, Aquaneers has created a cost-effective way for companies to reduce CO₂ emissions while producing carbon-based fuels and products from non-fossil sources.

**CAMBERLINE
TECHNOLOGIES, INC.**

Camberline Technologies

www.camberlinetech.com

Cambridge, MA
Energy Efficiency

Camberline Technologies *Metermonitor* is a hardware driven metering and data management service that plugs seamlessly into existing utility infrastructure. Unlike traditional smart meters, the hardware can be installed by anyone- it does not need a proprietary utility network for communications, using on-premise Wi-Fi or public cellular networks. Camberline's software serves utilities, electric retailers, municipal or community aggregations, and households or small businesses. The software delivers billing-ready data to their legacy billing systems using existing data exchange interfaces and standards. This solution enables time-based rates, which are incentives for people to change when they use electricity.



CBC Wind Energy

www.cbwindenergy.com

Warwick, RI
Energy Generation

Despite having enough wind to power 100 million homes (per US DoE), the cost of the power produced by current technologies is too expensive and the equipment is unreliable, inefficient and offensive to people. Typically located in remote areas with expensive cabling, CBC Wind Energy developed Hidden In Plain Sight™ (HIPS™) Wind Energy Structures to intercept and concentrate wind, protect and provide a stable two-point mount for the rotor, and support redundant generators. More power is produced more cost effectively (below 10cents/kWhr), and the technology survives Cat5 storms to provide storm resilience and power security all the while embedded transparently into the community.



CF Technologies Inc.

www.cftechnologies.com

Boston, MA
Energy Generation

CF Technologies tackles the problem of accumulated waste and brown grease at waste-water treatment plants and grease trap pump service companies. The pilot plant system converts waste material into biodiesel, a high value, advanced renewable liquid fuel. The solution is equipment and services sold directly to the consolidation facilities, who produce high value biodiesel, increasing their revenues with a new income stream, reducing greenhouse gas emissions and lessening the demand upon landfills and incineration. Biodiesel, a non-petroleum diesel substitute, reduces greenhouse gas emissions by 50% to 85%.



DispoMeds

www.dispomeds.com

Ridgefield, CT
Waste

Drug Take-Backs conducted by DEA or PhRMA are currently inefficient and unsustainable. Only about 10% of medications should be disposed of through EPA approved incinerators, however, since all collected drugs are intermingled, all are considered hazardous. DispoMeds has patented a technology designed to automate the process, reducing the cost while sorting drugs into hazardous and non-hazardous piles. The DispoMeds device identifies medications based on image analysis and artificial intelligence, and is able to identify the medications whether they are in original boxes or loose form.



enerision

Enerision Incorporation

www.enerision.com

Toronto, Canada
Energy Generation

Enerision Incorporation has invented a green cooling solution that saves up to 70% on electricity by utilizing unused waste/heat, without using any harmful refrigerants. Enerision's chiller uses any thermal energy - such as solar energy or low-grade waste heat (an existing by-product of operations) to produce cooling power. It also can be paired with a CHP (Combined Heat and Power) unit to offer cooling, heating and electricity as one integrated solution. **2019 CTONE Finalist**



Feedback Solutions

www.feedbacksolutions.ca

Toronto, Canada
Energy Efficiency

Feedback Solutions technology utilizes raw data produced by people-counting and tracking sensors to apply their algorithm via an Intel Gateway, resulting in 95+% accurate, real-time occupant counts that are communicated via BACnet/IP to the Building Automation System (BAS) optimizing ventilation rates to reduce energy consumption and GHG emissions. This technology has the ability to normalize the raw data received for in and out counts across multiple access points for a zone or zones to provide accurate, real-time occupant data that is reliable enough to be used by the BAS to optimize the ventilation rates in the space. This technology has proven to be capable of reducing HVAC-related energy consumption by 30%, or greater, in numerous environments. **2019 CTONE Finalist**



Flooid Power Systems

www.flooidpower.com

Holyoke, MA
Energy Generation

Flooid Power Systems compresses large amounts of air 50% more efficiently than current technology, while re-using the heat of compression twice to produce additional energy. The Flooid Tower converts this compressed air energy very efficiently into pressurized moving flooid energy. This super-dense, low-drag flooid then passes through a turbine to generate electricity. Every megawatt of installed Flooid Power capacity is a megawatt of carbon-producing, fossil-fuel-burning capacity that doesn't need to be built.



Fluid Sense - EcoBilge

www.ecobilge.com

Newport, RI
Water

Oil is currently discharged overboard from marine vessels due to inability to determine oil vs. water in a bilge environment. Fluid Sense has patented technology that, with flex circuits, can determine safe overboard discharge. Fluid Sense's EcoBilge technology would ensure the operator would not discharge oil or petrochemical chemicals overboard in a marine environment.



FLUX MARINE

Flux Marine LTD

www.fluxmarine.com

Narragansett Pier, MA
Transportation

The automotive industry has recently undergone an electric revolution, yet the marine industry lags far behind. Flux Marine has set out to design, manufacture, and market electric outboard marine motors to the boating industry. Our motors hold several tremendous advantages over gasoline counterparts; decreased maintenance costs, increased reliability, and minimized pollution. Flux Marine's electric outboards are designed to minimize failure points and utilize long-life solid state components, making them extremely reliable and virtually maintenance free. The electric outboard motors do not leave a footprint on the environment, and have the potential to reduce overall recreational outboard CO2 pollution levels by 240 million pounds annually with a 1% market capture. **2019 CTONE Winner**



Gridtwin

Cambridge, MA

Energy Distribution & Storage

Gridtwin's software platform locates the most cost-effective grid interconnection point for renewable energy projects. Gridtwin's software eliminates wasted time and money on early development of sites that have prohibitively high interconnection costs, reducing the pipeline of projects to the ones with the highest potential. The software automates the complex engineering calculations performed by the utility in order to give non-technical developers the information to quickly prioritize project development.



Halo Charging

www.halocharging.com

Boston, MA
Transportation

The Halo Energy Router lets two electrical loads share the same circuit breaker. This allows for installation of a 30, 40, or 50 amp EV charging circuit in an electrical service that is already at capacity without overloading the panel. This technology has the potential to eliminate a significant and growing point of friction in the implementation and adoption of electric vehicles across the country.



Hoplite Power Inc.

www.hoplitepower.com

Long Island City, NY
Energy Storage

Hoplite Hubs (autonomous vending kiosks) store, dispense, and automatically recharge Hoplites -- portable, rentable, slim and trim universal battery packs. Hoplites can be rented for up to 24 hours and can be returned to any Hub in the network. The Hubs and Hoplites support custom branding and sponsorship activations, which allow for advertisers and marketers to launch multi-layered and immersive campaigns. Hoplite Power is reducing e-waste, which in turn has a net impact on the cradle to grave footprint of Lithium ion Batteries. As a networked sharing economy product, Hoplite's power bank rentals are able to improve the utilization, reliability, quality control and accountability of the power bank market. This reduces the environmental hazards of power bank disposal and has a net reduction in the landfill CO2 footprint.



Iko Systems

Iko Systems

www.iko.systems

Boston, MA
Agriculture

Iko Systems is an Agri-Tech company developing micro-greenhouses and proprietary growing algorithms that allow medical marijuana patients to grow their own Cannabis effortlessly in their own home, maximizing customer convenience and success. Iko Systems provide an all inclusive, plug and plant hardware solution that can be remotely monitored and controlled through a smartphone. IOT-enabled sensors and environmental control algorithms paired with a controlled environment monitor and actuate changes inside the environment based on results from previous data. Using this system, the consumer is ensured an organic product at 50% lower costs than medical dispensaries.



Kara Water

www.karawater.com

New York, NY
Water

Kara is an IoT connected device that creates drinking water from the humidity in the air. The technology is based off of a desert beetle that can condense water vapor on its shell and drink the water off of its own back. By using naturally occurring methods to extract the water vapor from the air, the technology can intelligently sense its surroundings, adapt to its local environments and self adjust to optimize its performance for each individual user. Kara is the world's first Atmospheric Water Generator (AWG) for the home that uses a desiccant technology and can produce up to 3 gallons of water per day. As groundwater sources dry up, and cost of bottled water goes up, Kara's technology produces water on a case by case basis with minimum effort.



Littoral Power Systems Inc.

www.littoralpower.com

Fall River, MA
Energy Generation

Hydropower has been around for thousands of years, however traditional implementation such as impoundments that flood and poured-in-place concrete structures have fallen out of favor with the public and licensing agencies. LPS has implemented a new approach that offers lighter environmental impacts and an excellent return on investment. LPS systems can readily be configured to suit demand and different site conditions, and the systems require limited site preparation as compared to that required with incumbent approaches, reducing the environmental impact. Decommissioning and dam removal is significantly easier, and the benign design insures 0% fish mortality -- whether passing installation upstream or downstream.



LivingWaters Systems

www.livingwaterssystems.org

Milburn, NJ
Water

LivingWaters Systems' unique and versatile rainwater harvesting systems capture, filter and store a renewable supply of clean water for consumers at their doorsteps. Leveraging the surface area of the user's home, the system takes a single individual no more than 30 minutes to set up. Low-cost and portable, these soft body guttering units are ideal for disaster relief situations as well as refugee and off-grid settlements for supplementing essential household needs like drinking, bathing, and irrigating plants.



Maxwellian

www.maxwellian.com

Montreal, Canada
Information & Communications
Technologies

Specialized in optical sensing technology in the harsh environment for sensitive industries such as Oil & Energy and Aerospace. Maxwellian offers advanced optical sensing technology for hazardous and corrosive environments with higher sensitivity, long-lasting functionality, and increased robustness -- what commercial electronic sensors available today are not capable of.



PowerHV Inc.

www.phvbushing.com

Winnipeg, Canada

Energy Distribution and Storage

PowerHV manufactures energy efficient transformer bushings and sensors. PowerHV patented bushings are 80% more energy efficient than competing bushings. PowerHV sensors increase safety of transformers by continuously monitoring bushings and reduce the need for people to travel frequently to remote substations. These bushings reduce transmission and distribution losses on transformers by 30%.



QUATCARE

www.quatcare.org

New York, NY

Agriculture, Water & Waste

QUATCARE is striving to solve global industrial water microbial contamination. Today, this problem is addressed by using expensive chemicals that cause bacteria to develop resistance and mutate. QUATCARE's approach is more sustainable, eco-friendly and does not create microbial mutations- all at a low cost while allowing water waste to be better recycled and reused while controlling the spread of microbes, further reducing the impact on the environment. QUATCARE embeds a mix of quaternary ammonium compounds permanently into the surface of a product, allowing the surface to have continuous antimicrobial activity against a broad spectrum of pathogens. **2019 CTONE Winner**



RoCo Industries Inc.

www.rocoindustries.ca

Ottawa, Canada

Energy Efficiency

RoCo Industries has invented platform technologies to enable development of a cost effective solar sliding tile that achieves a 2 in 1 product, one as an insulated high efficiency siding material and two as a high efficiency solar tile to generate electricity. As a platform technology, our core technologies that we employ are re-configurable to develop many product lines to meet the different architectural needs of various building envelope designs. This smart product design takes advantage of modern energy efficiency standards, dictated by the current building codes, to integrate with existing building product seamlessly.



Scanify

www.scanify.com

Highstown, NJ

Information & Communications
Technology

Scanify has developed a 3D-modelling software that uses drone imagery and artificial intelligence to automatically design and analyze solar projects, allowing solar installers to create projects in one-click. Customers can upload drone imager, design all in 3D, and export site specs, customer proposals, shading reports and CAD layouts. Looking ahead, the system will include drone flight management, maintenance analytics, and full hardware options. Scanify's product reduces surveying and design time by up to 90%, while saving residential solar installers \$1,000 per project and commercial installers up to \$5,000 per project.



Sky Canoe

www.skycanoe.ca

Toronto, Canada

Transportation

Sky Canoe is a zero-emissions cargo drone and logistics system that aims to solve the interrelated problems of isolated communities, underserved markets and our fossil fuel dependent transport systems. Sky Canoe has a unique, innovative zero-emissions cargo drone design that is capable of VTOL while also being full FAA compliant. This design is backed up by a visionary micro-infrastructure system and a deep experience/knowledge of the regulatory requirements that cargo drones will face going forward.



Soilless

Providence, RI
Agriculture, Water & Waste

Soilless provides a solution to food insecurity. Research shows that low-income families would have to spend 70% of their food budget on fresh produce to meet dietary guidelines, an unreasonable expectation. Using a very unique system design, Soilless has built the most affordable hydroponic system on the market. Soilless emphasis is placed upon the affordability of the system; it is estimated to cost \$5-8 to produce with a manufacturer, as opposed to a commercial system which retails for up to \$500. Soilless offers better water retention and less impactful shipping in contrast to its competitors; energy is saved by growing food where it is from, eliminating transportation environmental costs.



Soli

www.solipoints.com
Cambridge, MA
Information & Communications
Technology

Soli addresses the climate crisis with a consumer reward that links everyday shopping to the reduction of CO2. Soli Points are redeemable digital coupons that retire cap & trade carbon offsets, rewarding consumers, and helping companies build brand, attract customers and be socially responsible. In buying allowances in the cap and trade markets, Soli is accelerating the conversion of energy generation to renewables. Soli also buys offsets from GHG sequestration at the agricultural level to encourage climate-friendly agronomy and convert those offsets into Soli Points.



Somerville Electric Vehicle Co.

www.som-ev.com
Somerville, MA
Transportation

The Somerville Electric Vehicle Company (SomEV) provides charging solutions for micro-mobility applications by using swappable batteries paired with a battery subscription service, so that users never have to wait to charge. SomEV charges and stores batteries in self-serve swap-and-go kiosks. When a commuter riding an e-scooter or e-bike is low on charge, they pull up to a kiosk and swap out their drained battery pack for a fully-charged one. By not attaching the battery to the vehicle permanently, users get more energy per battery and energy is saved.



Springpower International

www.springpowerintl.com
Mississauga, Canada
Chemicals & Advanced Materials

Springpower International Inc. is providing advanced active materials for Lithium ion battery manufacturers with its environmentally-friendly technologies. SPI is strategically filling the gap between mining and battery companies in North America; the technology is a closed loop process that does not generate effluent, eliminating environmental risks and reducing production costs.



Teratonix

Teratonix LLC
www.teratonix.com
Pittsburgh, PA
Energy Distribution & Storage

Currently, IoT sensors and active medical devices are mainly powered by batteries and there is no commercially available remote powering solution for either. Teratonix is aiming to address the limited lifespan of a battery, which leads to high battery replacement/maintenance cost and huge amount of battery waste. Teratonix has developed an ultrahigh-speed Metal-semiconductor-metal (MSM) heterojunction diode. This diode's speed is 100-1000x times faster than other known diodes, and has zero-bias cutoff frequency > 100 GHz, making it the only known technology capable of rectifying broadband radio signals into DC power. **2019 CTONE Winner**