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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
C.A. Goudey & Associates	Clifford A. Goudey	Small Business	Engineering	Advanced system analysis, design and manufacture related to ocean engineering, renewable technologies, and water transport.	Address: 21 Marlboro Street Newburyport, MA 01950-3127 Email: cliff@cagoudey.com Phone: 978-914-1901
SolWards LLC	Dr. David L. Hagen	Small Business	Energy RD&D/Inventor, Mechanical Engineering, Physical Chemistry, Physics	Novel thermal desalination system for concentrating solar power (CSP), concentrating photovoltaics (CPV), geothermal, or fossil power cheaper than reverse osmosis (RO). 23 US patents including efficient power cycles, controls, hydrocarbon recovery, and a CO2 capturing calciner.	Address: 61485 County Road 13, Goshen IN 46526-8713 USA Email: info@SolWards.com Phone: +1(574)875-0795
Hawaii Natural Energy Institute	Matthieu Dubarry	Higher education	Electrochemical systems. Intercalation electrodes formulation	The HNEI 900 sf. Battery prototyping laboratory is located in the University of Hawaii at Mānoa main campus. It hosts sophisticated, state-of-the-art equipment for material synthesis, the fabrication of electrodes, their assembly in prototype cells and their testing in test cells. Major equipment includes an Argon filled glove box, several ceramic ovens, three fumehoods and several battery testers including 15 channels for prototype testing as well as several temperature chambers, a UV-visible spectrometer, a rotary evaporator, two vacuum ovens, and an ellipsometer.	Address: 1680 East West Road, POST109, Honolulu, HI, 96822 Email: matthieu@hawaii.edu Phone: (808) 956-2349
Fountain Quail Energy Services	Brent Halldorson, CTO	Oilfield service company specializing in PW treatment, desalination	MVR evaporators, experience with oilfield produced water & high TDS brine	Fountain Quail Energy Services pioneered oilfield water recycling in Texas. We strive to offer low-cost, common-sense solutions for our customers. FQES firmly supports industry and the drive to make America energy independent. Energy is important and so is water - we exist to help find balance so that our customers can effectively recycle and re-use water to the fullest extent possible at a cost-effective price. FQES operates in the real-world crucible of oilfield water management and would be capable of piloting/operating/testing systems in real world conditions.	Address: 130 E. John Carpenter Freeway, Suite 440, Irving TX 75062 Email: bhalldorson@fountainquail.com Phone: (214) 396-6658
Trimeric Corporation	Andrew Sexton	Small Business	Process/chemical engineering	Trimeric provides engineering services to industrial and government clients to facilitate the development of new process technologies. Capabilities include process design, equipment selection, process simulation, property estimation, building prototype process units, test program planning, project feasibility, and techno-economic studies. Trimeric works with an extensive network of vendors, technology providers, and end-users.	Address: PO Box 826, Buda, TX 78610 Email: Andrew.Sexton@trimeric.com Phone: 512-618-9725

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Vuronyx Technologies	Sandip Agarwal, PhD	Small Business	Capacitive DeIonization for water desalination, novel materials	Vuronyx Technologies is working on novel electrode materials for water desalination using Capacitive DeIoinization (CDI). Our expertise lies in synthesis and testing of novel electrode materials for CDI, and we are currently developing a solar powered CDI system for small communities, remote areas, and developing countries.	Address: 5 Walnut Hill Park, Unit 13, Woburn, MA 01801 Email: sandip.agarwal@vuronyxtech.com Phone: 7813097448
RTI International	Dr. Zachary Hendren	Non-profit	materials development, computational chemistry, process modeling simulation & design, lab and bench scale testing, integrated process and systems development and scale-up, modular systems design and engineering, water management tools and strategy, polymer and composites chemistry	•Technologies for biofouling prevention and remediation, integrated forward osmosis and membrane distillation, solvent-based desalination, water decontamination •Strong competencies in developing, designing, constructing, and operating reactor systems for novel applications (ex: integrated FO/MD prototype system (500 gallons per day) for the treatment of brine concentrate derived from the RO treatment of raw, oil-field produced water) •Capabilities and methods for large-scale technology road mapping •Demonstrated skills and insights associated with the societal, environmental and technological risks arising from implementation of new technologies; assessments include life cycle analysis capabilities •Experience coordinating large scale collaborative efforts with multiple stakeholders	Address: 3040 E Cornwallis Rd, Research Triangle Park, NC 27709 Email: zhendren@rti.org Phone: 919-541-6605

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Hawaii Natural Energy Institute	Jean St-Pierre	Higher education	Membrane distillation	The Hawaii Sustainable Energy Research Facility (HiSERF) researcher team has more than 40 years of cumulative experience with fuel cells and their operation including membranes, water management, and contamination. This knowledge is directly transferable to water treatment and the removal of impurities. Plate and frame modules for membrane distillation have similar construction features to fuel cells. Their operation is also similar because in both cases fluids are circulated in two compartments separated by the membrane with water transported across it. HiSERF researchers have recently obtained promising data for a preliminary water desalination module and the team is actively seeking funding opportunities. Equipment is readily available to build, test and characterize single cell modules and component materials, including gas and water permeability, wettability, and micro-structure of membranes and porous layers. Other available equipment to assess water quality include a pH/conductivity meter, an ultraviolet-visible light spectrometer, an ion chromatograph, an inductively coupled plasma - optical emission spectrometer, a total organic carbon analyzer with a total nitrogen detector, and a gas chromatograph/mass spectrograph.	Address: University of Hawaii – Manoa, Hawaii Natural Energy Institute, 1680 East-West Road, POST 109, Honolulu, HI 96822 Email: jsp7@hawaii.edu Phone: (808) 956-3909
Pacific Research Group	Ted Kuepper	Service-Disabled Veteran-Owned Small Business (SDVOSB)	Seawater and Challenging Freshwater Filtration, Reverse Osmosis Desalination, and High-Pressure Pumping	Pacific Research Group (PRG) is a leader in the design, development, test and evaluation of innovative desalination-related equipment for the US military and non-governmental organizations (NGO). Our expertise lies in the technical area of filtration, reverse osmosis desalination, and high-pressure pumping. Mobile water treatment equipment designed by PRG staff are currently being used by the US military and disaster relief organizations under challenging water conditions all over the world. Our design focus includes developing equipment with features that emphasize: effectiveness, simplicity, lightweight, compactness, low energy and low maintenance.	Address: 5580 La Cumbre Road, Somis, CA 93066 Email: tke@isle.net Phone: 805-985-3057

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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
Ocean Pacific Technologies	John MacHarg	Small Business	Advanced high-pressure pump and energy recovery technologies for reverse osmosis desalination systems.	Ocean Pacific Technologies (OPT) designs, develops and manufactures water lubricated axial piston high-pressure pump and energy recovery technologies. In particular, OPT has developed a wear-resistant and low maintenance, ceramic enhanced high-pressure pump specifically for reverse osmosis desalination. OPT's capabilities include: water lubricated bearing design, advanced materials and ceramics manufacturing, ultra-high precision manufacturing, static and hydrodynamic seals.	Address: 2419 Harbor Blvd, #173, Ventura, CA 93001 Email: john@ocean-pacific-tec.com Phone: 650-283-7976
Hawaii Natural Energy Institute, University of Hawaii at Manoa	Godwin Severa, PhD. MBA	Academic	Ionic liquids for purification and separation, Inorganic Chemistry, novel materials development and characterization.	The Purification and Gas Sorption Materials Development Lab has available various equipment including a glovebox, fumehood, FTATR, vacuum and conventional ovens, TGA-DSC and rotary evaporator. The lab is also in the process of setting up and developing capabilities for forward osmosis seawater desalination including, a bench scale forward osmosis analyses cell, with potential to evaluate performance of different draw solutes/solutions and forward osmosis membrane materials.	Address: 1680 East West Rd., POST 109, Honolulu, HI 96822 Email: severa@hawaii.edu Phone:808-956-3723
University of Florida	Dr. William E. Lear	Higher education	Engineering modeling, design, and innovation	Modeling and design capability for innovative energy-water system components and overall system. Inventors of ultra high efficiency distributed generation system which captures combustion-generated water and provides high quality heat for desalination.	Address: Mechanical & Aero Engineering Dept. PO Box 116300 Gainesville, FL 32611 Email: lear@ufl.edu Phone: (352) 672-2763
GreenBlu, Inc.	Dr. Howard Yuh	Small Business	High-efficiency thermal desalination. Rapid prototyping, R&D, engineering, instrumentation, design.	Patented multiple-effect vapor adsorption technique can be high TDS, mixed TDS, and Zero Liquid Discharge capable. Development is still necessary to prove these capabilities. Estimates show cost is highly-competitive. Thermal powered using low and mid-grade heat (CSP, flared gas, waste). Developing containerized solar desalination as awardee for Topic 1 (Innovations in thermal desalination technologies) of DE-FOA-0001778.	Address: 1800 E State St Ste 145 Hamilton, NJ 08609 Email: info@greenblu.co Phone: 609-438-3384 Website: greenblu.co

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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
International Desalination Consultancy Associates LLC (IDCA)	Leon Awerbuch, President	Consultancy in Technology, Development in Desalination, Energy and Power	Desalination Thermal and Hybrid of MED, MSF, MVC-Membrane RO and NF, Power, Renewable and Nuclear Energy, Inventor, R&D, Project implementation, O&M and Training.	As a president, of IDCA LLC and President & CTO of Leading Edge Technologies Ltd as well as Dean of IDA Desalination Academy, Leon Awerbuch has been involved in the desalination industry for more than 35 years. He joined Bechtel Group in 1972 in R&D followed by increased responsibilities for power and water programs as International Bechtel Co. Ltd Vice President and Senior Regional Representative for the Middle East. Currently involved in providing technical and commercial consultancy to number of leading suppliers and utilities covering Reverse Osmosis and Thermal Desalination and Power Projects as well as assessment of new desalination technologies. Past President of IDA, Chairman of six IDA World Congresses on Desalination and Water Reuse. He currently serves as a Director and Officer of the Association and Chairman of IDA Energy and Environment Committee. He has been a Chairman of IDA's Technical Programs for the past 25 years, he has organized and chaired over 40 conferences, around the world. He holds 28 patents and has published over 90 technical papers. He received a Lifetime Achievement Award from IDA in 2007 and Life Achievement at the Inaugural Power Generation and Water Solutions Middle East Awards October 2009. In January 2015 Leon Awerbuch was voted one of Water & Wastewater International's top 25 industry leaders. He is Board member of Global Clean Water Desalination Alliance (GCWDA). Mr. Awerbuch received a master's degree in Chemical Engineering and Chemistry from Warsaw Technical University.	Address: 14 Trinity Road, Winchester, MA 01890 Email: letleon@comcast.net Phone: 781-729-2796

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Lehigh University	Prof. Arup SenGupta	Institution of Higher Education	Water Treatment Technologies, Desalination Environmental Separation and Control, Hybrid Separation Processes Novel Adsorbents, Ion Exchangers, Reactive Polymers and Specialty Membranes	Lehigh University provides opportunities for undergraduate and graduate education as well as world-class research, all aimed at finding innovative solutions to global water challenges. Lehigh has faculty that lead the field of ion exchange science and technology in solving environmental problems and has led to the development of new classes of hybrid ion exchangers that have been incorporated into water and wastewater treatment processes globally. Within the modern STEPS Building, the environmental engineering program has 5,053 square feet of laboratory space, including separate working labs along with shared optics, autoclave, and equipment labs. All the major analytical instruments, such as AA spectrometer with flame attachment (Perkin Elmer, model- AAnalyst 200), AA Spectrometer with graphite furnace (Perkin Elmer- AAnalyst 600 and Perkin – Elmer SIMA6000), ICP-ES (Perkin Elmer, model- Optima 2000DV), UV/VIS spectrometer (Perkin Elmer, Lamda-2), Ion chromatograph (Dionex, model- DX 120 IC), SEM & EDAX analyzer (HITACHI # 4300), DOC analyzer (SHIMADZU–Carbon Analyzer), Zeta potential measuring Instrument (Zetasizer, Malvern make), SHIMADZU Gas Chromatograph with flame ionization detector (GC-FID) and Hach spectrophotometer (DR/4000) are available for carrying out research projects in our Environmental Engineering Research Laboratory. Additionally, Lehigh University also houses one of the largest scanning electron microscopy facilities in the US and it contains a suite of 12 world-class high resolution scanning electron microscopes (SEM) and transmission electron microscopes (TEM) and SEM/TEM instruments.	Address: Dept. of Civil and Env. Eng. 1 West Packer Avenue Bethlehem, PA 18015 E-mail: arup.sengupta@lehigh.edu Phone: (610) 758-3534

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Advanced Cooling Technologies, Inc.	Dr. Fangyu Cao	Small Business	Energy RD&D, thermal storage and management, thermal desalination, power and renewable energy, lab and bench scale testing, rapid prototyping and scale-up, engineering.	Advanced Cooling Technologies, Inc. (ACT) is a high-technology small business located in Lancaster, PA specializing in advanced thermal management technology development and custom thermal product design and fabrication. ACT offers a complete range of R&D and thermal engineering services from initial concept generation to product design to high volume production. Our research expertise includes but not limited to defense/aerospace thermal solutions, thermal management for power and renewable energy, energy storage and recovery, advanced coating and separation technologies, and energy-water nexus. In particular, ACT is developing a variety of desalination-related technologies as awardee for solar thermal desalination (DE-FOA-0001778), vacuum freezing desalination (DOE SBIR), and condensation irrigation (USDA SBIR).	Address: 1046 New Holland Ave, Lancaster, PA 17601 Email: fangyu.cao@1-act.com Phone: (717) 205-0611
Sunny Clean Water LLC	Haomin Song	Small Business	Portable and foldable solar still product design and manufacturing. Prototype development and testing.	Sunny Clean Water LLC is a startup company aiming to develop solar driven water purification product using solar-thermal management and cost-effective cooling technologies. The product line under R&D will provide stilled water for individuals, families, small villages and communities, as well as for disaster relief and outdoor activities. The water productivity of our current prototype is ~3X better than the existing commercial solar still.	Contact Address: 237 Davis Hall, University at Buffalo, Buffalo 14260 Contact Email: info@sunnycleanwater.com Contact Phone: 716-645-8958
Flibe Energy, Inc	Kurt Harris	Small Business	Advanced Nuclear Energy, Molten Salt Reactors	Design of molten-salt systems, specifically the Liquid Fluoride Thorium Reactor (LFTR), which will couple with a supercritical carbon dioxide power conversion system. Non-parasitic (to electricity production) desalination can be implemented with this technology.	Contact Email: kurt.harris@flibe-energy.com Contact Phone: 435-535-1414
GlidePath Power Solutions LLC	Khariell Pinkney	Development in Energy and Power	Electricity Markets, Project Finance and Development.	GlidePath posses the ability to implement projects of varying scale with interest to renewable resources. Our assets include over 100+ megawatts of power deployed.	Contact Address- 132 N. York St, Suite 3L Elmhurst, IL 60126 Contact Email- kpinkney@glidepath.net Contact Phone- (773)-556-8122

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University at Buffalo, The State University of New York	Qiaoqiang Gan & Zongfu Yu	University	Advanced materials for solar-thermal energy management and radiative cooling technologies.	The collaborative team of Gan and Yu's groups are working on developing advanced light absorbing porous materials for efficient solar vapor generation as well as extremely low cost thermal emission materials for electricity-free radiative cooling. Recent R&D efforts were featured by Science, Salon and 71 news channels including ABC, Fox TV channels and Smithsonian Magazine. These technologies can be used to develop new solar driven water purification technologies and new strategies to collect fresh water from humid air.	Contact Address: 230M Davis Hall, University at Buffalo, Buffalo 14260 Contact Email: qqgan@buffalo.edu and zyu54@wisc.edu Contact Phone: 716-645-1152
North Carolina State University	Roger J Narayan	Academic	Materials science	nanoporous membranes, novel electrode materials, and novel antifouling materials	rjnaraya@ncsu.edu, 919 696 8488
Utah State University	Dr. Hailei Wang	Higher Education	•Freeze Desalination •Energy Storage •Enhanced Boiling and Condensation •Hybrid Energy Systems •Heat Exchangers	•A unique freeze desalination process is currently under research and development •The process can be combined with thermal energy storage and is very scalable •A hybrid cooling, heating and power unit can be leveraged for scaling up the freeze desalination/energy storage process •A high-speed camera and stereo microscope are available to improve understanding the processes •A typical thermal-fluid science lab with emphasis on energy research and innovations	4130 Old Main Hill Mechanical & Aerospace Engr. Utah State University Logan, UT 84322 Email: hailei.wang@usu.edu Phone: 435-797-2098 Website: https://mae.usu.edu/faculty/hailei-wang/index
Oisann Engineering	Kyle Hopkins	Small Business	Desalination Offshore marine Heave compensation Project management	Oisann Engineering created the patent pending Waterfountain subsea desalination system that efficiently produces permeate without exhausting saline brine. Waterfountain can scale from 8,000 to 8,000,000 gallons per day. Capabilities include modeling, construction and operation of offshore installations along with subsea systems development and management.	Contact Address: Ausvigheia 10, 4640 Søgne, Norway Contact Email: kyle@waterfountain.no Contact Phone: 747-229-3454

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Oceanus Power & Water, LLC	Neal Aronson	Small Business	Infrastructure Development, Clean Energy, Water Treatment, Reverse Osmosis Desalination, Pumped Storage	Oceanus is an infrastructure development company focusing on delivering water and energy security to impacted regions. The Oceanus value proposition lies in the integration of three proven technologies: saltwater reverse osmosis desalination, pumped hydropower storage and renewable energy. The reliable supply of affordable, renewable power and clean drinking water are among the world's most pressing challenges, and Oceanus seeks to address these challenges with its innovative Integrated Pumped Hydro Reverse Osmosis Clean Energy System (IPHROCES) for deployment across a wide variety of locations, including coastal locations with adequate elevation nearby and demand for water and energy storage. IPHROCES provides safe and robust energy storage with some of the lowest Levelized Cost of Energy Storage. The co-location of pumped storage hydro with reverse osmosis desalination achieves demonstrable cost reductions, energy efficiency, and emissions reductions, while offering an affordable and very low emissions sources of water and brine discharge solutions.	Contact Address: 900 High Street, Palo Alto, CA 94301 Contact Email: neal@oceanus.pw Contact Phone: (650) 380-3323

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University of Houston/Environmental Microbiology and biotechnology laboratory	Debora F. Rodrigues	Higher education/Hispanic Serving Institution	biofilm, biofouling, biomineralization for bioscaling, development of novel water treatment techniques, biosorption, molecular biology, adsorption and photocatalysis using nanotechnology and biotechnology, modification of membranes with nanomaterials for enhanced performance	The laboratory contains a sterile transfer hood, two class II Biohazard Safety Cabinet for sterile manipulation of biological materials, two dedicated autoclaves, MilliQ water purification system, SYNERGY MX from BioTek that works as a Spectrophotometer, Luminescence Reader, and Fluorimeter with top and bottom monochromator-based fluorescence intensity reader (this instrument has a Microplate reader, cuvette reader, and a Take 3 Plate (for DNA and RNA quantification like nanodrop)), fume hoods for work with volatile contaminants, Orion* 5-Star Portable Multiparameter Meter (Thermo Fisher Scientific Inc., IL), a plasma cleaner, spin coater, dip coater, Leica Ultra-microtome, and Thermo Nicolet FTIR-ATR Infrared Spectroscopy. Bath sonicator, tip sonicator, a Sorvall refrigerated centrifuge Legend XTR with rotors, an Eppendorf microcentrifuge 5418, a high speed vacufuge (Thermo Electron), and ice machine. One refrigerator, two -20oC freezer and one -80oC freezer (will be used to store samples and reagents). One phase contrast and fluorescent microscope, Leica Confocal Microscope TCS SPE II, Freeze-dryer (Labconco, Inc.), Mettler Toledo Analytical Microbalance, Qubit 3.0 Fluorometer from Thermo Fisher Scientific, Inc., STEP ONE PLUS 96 well RT-PCR System from ABI, Veriti 96 Well Gradient Thermal Cycler from ABI, SpotLight™ Microarray Scanner (Arrayit, Corp.), SpotBot® 3 Personal Microarrayer (Arrayit Corp.), 180C Gas Analyzer containing a non-dispersive infrared CO2 and paramagnetic O2 sensors (Columbus Instrument), a gel imaging system for the visualization of DNA/RNA and protein gels, sample collection apparatus, processing devises, pumps, filters, liquid nitrogen and consumables, two refrigerated shakers and incubators from Thermo, two Thermo water baths, savant DNA SpeedVac Concentrator, one dedicated PCR workstation (UVC PCR chamber), and one ice machine.	Cullen College of Engineering Building 1, 4726 Calhoun Road, Room N107, Houston, TX 77204-4003 Email: dfrigirodrigues@uh.edu Ph: 1-713-743-1495

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University of North Dakota – Institute for Energy Studies	Dr. Michael Mann	University/ Higher Education	Research and Design Supercritical Water Desalination Chemical Process Systems Modeling	The University of North Dakota, represented by the Institute for Energy Studies (IES) and the Energy & Environmental Research Center (EERC) provides a diverse team comprising engineers/researchers/scientists with a multidisciplinary research portfolio. The IES portfolio includes two DOE funded desalination projects: Supercritical Treatment Technology for Water Purification (DE-FOA-0001770) and a solar desalination project called Supercritical Water Extraction – Enhanced Targeted Recovery (SWEETR™) (DE-FOA-0001975) as well as several smaller industry-supported efforts. Within UND EERC's industry/state funded consortium, a variety of projects have been conducted that involve produced water. Activities include techno economic analysis of conventional and emerging desalination processes, field testing of technology, and basin-wide characterization of a multitude of saline and brackish waters including Bakken formation produced water. Our water research technologies have focused primarily on production/flow-back water obtained during oil production by hydraulic fracturing in the Bakken oil field, and are being developed to be flexible and complementary with existing commercial water treatment systems such as Reverse Osmosis. The UND team is capable of novel research and design at our state-of-the-art facilities; have strong relationships with Midwest power and oil industry, all thanks to our extensive experience with academia, energy, high pressure and temperature systems.	Contact Address: Collaborative Energy Center, Room 246A 2844 Campus Road, Stop 8153 Grand Forks, ND 58202-8153 Contact Email: michael.mann@und.edu Contact Phone: 701-777-3852
University of Texas Rio Grande Valley	Dr. Yingchen Yang	Higher Education	Ocean energy harvesting, HDH desalination of seawater	Development of an ocean-based humidification-dehumidification (HDH) desalination process featuring: (1) a pure mechanical approach with zero consumption of electricity (except for sensing or monitoring if desired), (2) direct use of multiple renewable energy sources (solar, wind, wave, tidal, ocean current, and ocean thermal) in almost natural ways to fully power the entire HDH process, (3) no formation of brine (similar to the hydrologic cycle), (4) consistent operation in all-weather conditions (day or night, calm or windy, summer or winter) and, (5) strong potential for large-scale fresh water production.	Contact Address: Department of Mechanical Engineering, 1201 West University Drive, Edinburg, TX 78539 Contact Email: yingchen.yang@utrgv.edu Contact Phone: 956-882-6652

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GVD Corporation	Chris Thompson	small business	vacuum deposited polymer/oxide coatings, thin films, surface modification	GVD specializes in the development of vacuum deposited polymer films that are ideal for surface modification of planar or porous substrates. Our current product portfolio includes fluorocarbon materials with hydrophobic and superhydrophobic properties, ion conducting polymers with high thermal and hydrolytic stability, and flexible gas barrier materials. GVD's chemical vapor deposition processes allow for high coverage, conformal coatings with precise control over composition and morphology. In addition to carrying out R&D programs funded by commercial and government sources, GVD operates multiple production facilities for its products in mold release applications, surface modification and corrosion protection.	Contact Address 45 Spinelli Pl. Cambridge MA 02138 Contact Email,: cthompson@gvdcorp.com Contact Phone: 617-661-0060, ext 136
zNano LLC	Dr. Adrian Brozell	Small Business	Bioinspired MF, UF, NF, RO, and FO membrane coatings	zNano is an award winning WaterTech company that has developed and patented bioinspired self assemblying ceramic membrane coatings for water treatment and the applications enabled by these materials. zNano's coating reduces fouling of microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), reverse osmosis (RO) and forward osmosis (FO) membranes. The coating is current used to decrease fouling both of NF membranes for textile wastewater treatment and of UF membranes for industrial reuse applications. The material was part of NASA's Game Changing Development Space Synthetic Biomimetic Membrane project. zNano has a 7,840 sq ft facility with commercial material production equipment, membrane testing equipment, membrane piloting equipment, and a full range of analytical equipment. In addition, zNano has a separate facility dedicated to piloting industrial water reuse technologies.	2076 Zanker RD San Jose, CA 95131 (408)206-6913 Adrian.Brozell@znanosys.com
Georgia Institute of Technology	Kishor Gupta	Academic	Capacitive water desalination, Carbon materials, Energy storage, and Carbon fiber.	At Georgia Tech we have developed an economically viable and easily scalable nanostructured high surface area carbon for capacitive water desalination. The surface area of this carbon is ~3500 m2/g, which is higher than single layer graphene surface area (2630 m2/g). Electrodes made from this carbon for capacitive water desalination has 30x higher electrical conductivity, which leads to 15x higher specific capacitance in 6M NaCl. The preliminary result shows 2x higher desalination capacity as compared to the commercially available activated carbon. A patent has been issued to Georgia Tech Research Corporation on this nanostructured carbon technology.	Contact Address: School of Materials Science and Engineering 801 Ferst Drive, NW, MRDC 1 Atlanta, GA 30332-0295 Contact Email: kishor@gatech.edu Contact Phone: 404-771-2391

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Institute for Water Resources Science and Technology, Texas A&M University-San Antonio	Dr. Walter Den	University/ Higher Education	•Electrochemical processes (capacitive deionization, electrodialysis, electro-Fentor, electrocoagulation) for water purification/desalination/reclamation •Advanced oxidation processes (photocatalytic oxidation, ferrate oxidation, ozonation) for water purification •Membrane-based separation processes (ultrafiltration, reverse osmosis, forward osmosis) •Nanomaterials synthesis and applications (carbon nanotube, graphene, polymers, metal-organics) •Phytoremediation for desalination and decontamination	The Institute of Water Resources Science and Technology at Texas A&M University-San Antonio aligns itself with Texas water technology roadmap, and plays an important role in filling the workforce gap of Texas' aging water industry. The Institute is now engaged to varying degrees with more than 60 partners locally, statewide, nationally, and internationally either directly or indirectly through coalitions and networks, such as the Water, Energy, Food Nexus Research Group (NSF-funded), Texas Water Development Board, South Central Texas Water Research Interest Group, Texas Water Research Network, Gulf Coast Cooperative Ecosystem Studies Unit. The Institute has also worked collaboratively with other research institutions to develop energy-efficient desalination process revolving around the principle of capacitive deionization, through the integration of other supporting processes to purify contaminants, as well as taking advantage of site-specific energy resources.	Contact Address: One University Way, STEM Building 349D, San Antonio, Texas 78224 Contact Email: walter.den@tamusa.edu Contact Phone: (210)784-2815

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Green Star	JW Jennings			A saltwater desalination plant incorporating 7 new technologies can produce over 100 million gallons of high quality hurricane proof, drought-proof clean drinking water and power to the selected area residents every day at a minimal or zero power expense. As a hurricane proof plant, most all structures will be underground. To reduce energy consumption and cost at the plant, Green Star will employ 10 state-of-the-art renewable clean energy devises and solar devices that are able to each produce an estimated 50 MegaWatts of Power per hour or more, and reduce carbon emissions by 80,000 metric tons annually. All six (7) technologies are incorporated by reference. This will revolutionize the worldwide saltwater desalination water industry and the extreme cost of power and filtration. This will also be the only desalination plant in the world that is completely self-sufficient, producing clean drinking water and power at the same time. The amount of energy produced by this plant will completely power it, and generate an additional 200 MegaWatts of power to be placed into the surrounding grid for use in other areas. Both the water and power will be based on Blockchain Technology.	2875 W. Ray Rd., #6 Chandler, AZ 85224 480-430-2043 jw@greenstar.mobi

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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
Teledyne Scientific and Imaging	Rahul Ganguli	Large for profit	High flux and foul resistant coated UF, NF and RO membranes. Oxidation damage resistant polyamide-based membranes.	We have recently demonstrated foul resistant UF, and high flux, foul resistant, chlorine resistant NF membranes by coating existing membranes. For NF membranes we have 6 month data with real seawater showing sustained higher permeability, and significantly longer time between cleaning. In addition, our coated membranes show chlorine resistance enabling continuous chlorination for polyamide-based membranes. These qualities would significantly reduce both the capex and the opex of membrane operation, enabling significantly lower desalination costs. To support our membrane development, we have fabricated fully automated and customizable skid mounted sytems for Pilot demonstrations for UF, NF and RO membrane based systems. In addition we have extensive materials characterization and develop facilities including electron microscopy, spectroscopy (UV/VIS/NIR, with ATR capability), Xray photoelectron spectroscopy, contact angle measurement. We also have extensive membrane characterization equipment including automated pressurized systems for UF, NF and RO membranes in flat sheet and module forms. Also we have the ability to determine ionic rejection of a variety of different ionic species using both HPLC and atomic adsorption. A key part of the IP of our coating is the ability to coat membranes in already packaged modules of many different configurations including hollow fiber, spiral wound, tubular, flat sheet in any commercial size.	Contact Address 1049 Camino Dos Rios, Thousand Oaks, CA 91360 Contact Email rganguli@teledyne.com Contact Phone 805-373-4573
University of Maryland, College Park.	Dr. Farah Singer	Academic/ R&D	Advanced thermo-mechanical design and optimization, Novel composite heat exchangers for harsh environments, Thermosiphon systems, Materials, and Manufacturing techniques for energy conversion systems, Process intensification and thermal cycle design/simulation.	Cost effective, high performance advanced polymer composite heat exchangers for harsh environment conditions. Extensive experience in design and modeling of two phase flow and thermosiphon systems for heat recuperation to be utilized in thermal desalination systems. Materials and manufacturing capabilities for novel design of components for desalination applications. Significant expertise in design optimization of cycles for desalination—including a proprietary technology for a self-recuperating, highly efficient desalination process. Our team of experts offer thermo-mechanical design, risk and reliability, and material characterization expertise as necessary. Leading professors of the team include Professor Hugh Bruck, Professor Patrick McCluskey, and Professor Michael Ohadi.	Contact Address: 8228 Paint Branch Drive, Kim Engineering building, office 3131A, College Park, Maryland 20742. Contact Email: fsinger@umd.edu Contact Phone: 443-905-0295

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TEAMING PARTNER LIST
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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
Magna Imperio Systems Corp.	Chad Unrau, COO/CTO	Water Treatment Solutions Provider & Technology Developer	Technical expertise in electro-chemical desalination technologies and manufacture thereof including END, electrodialysis, electro-deionization, capacitive deionization, and electrodialysis metathesis.	•Manufacture and supply of high performance electro-chemical desalination technologies •Real world testing of desalination solutions •R&D on new electro-chemical desalination techniques	11302 Steeplecrest Drive, Houston, TX 77065 cunrau@m-i-systems.com 832-320-7372
Iowa State University	Say Kee Ong and Sina Moharamzadeh	Higher Education Institution	Freeze desalination, brine management, progressive freeze concentration (PFC), PFC heat transfer modeling	• Currently investigating progressive freeze concentration (PFC) process for low-energy desalination of seawater, brackish water and RO reject concentrate • PFC strategy has been extrapolated from prior team research on water recovery using urine freeze-thaw cycling • Studies cover a multi-factorial evaluation of primary and secondary system variables • Parallel modeling assessment underway covering system heat transfer	Contact Address: Dept. of Civil, Construction and Environmental Engineering, 422 Town Engineering Building, Ames, Iowa 50011 Contact Email: skong@iastate.edu Contact Phone: 515 294 3927
Oneka Technologies	Dragan Tutic	Small Business, Technology Developper	Wave Energy Equipment Engineering, Reverse osmosis desalination, Wave powered desalination	Oneka developed a wave-powered desalination technology that mechanically produces drinking water using the energy of the waves with no electricity. Oneka has tested its latest generation buoy for over a year at its test site in Fort-Pierce, Florida.	Contact Address: 4141 rue Comtois, Sherbrooke, Qc, J1L1R7, Canada Contact Email: DT@Onekawater.com Contact Phone: 819-580-6380
Florida International University	Cheng-xian (Charlie) Lin	University	heat exchangers, membranes, modeling and simulations	Design, optimization, and analysis of thermal/fluid systems, including heat exchangers, membranes, pipelines, and pumps. High fidelity computational fluid dynamics modeling and simulation with and without phase changes.	Contact Address: 10555 W. Flagler St., EC 3445, Miami, FL 33174 Contact Email: lincx@fiu.edu Contact Phone: (305) 348-0537

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Organization	Contact Name	Organization Type	Area of Technical Expertise	Description of Capabilities	Contact Information
Palo Alto Research Center, Inc. (PARC)	Dr. Jessy Rivest	Large Business (PARC is a wholly owned subsidiary of the Xerox Corporation)	Tech to Market, Desalination, Energy Storage, and Hydrodynamic Separation	•Tech-to-market expertise in a wide range of fields as a research and co-development facility for Xerox, commercial clients, and government sponsors •Desalination using our proprietary electrochemical technique called SUPER, which separates salt from water at very low specific energy consumption •Desalination coupled to energy storage using a hybrid flow battery •Low-cost hydrodynamic separation of suspended matter from multiple water matrices	Contact Address: 3333 Coyote Hill Road, Palo Alto, CA 94304-1314 Contact Email: jrivest@parc.com Contact Phone: 650-812-4225
Produced Water Society	Zachary Roesch	Non-profit	All areas of water treatment, handling, chemistry, characterization, and disposal	The Produced Water Society is a membership organization of water treatment professionals focused on the treatment, handling and disposition of water for and as a result of hydrocarbon production, including separations, suspended and dissolved solids removal, and all areas of project development and implementation. Members of the society represent many different companies and many areas of expertise but come together with a combined mission to improve water issues for the whole of the industry.	Contact Address: 2121 E 6th St. #202, Austin, Texas 78702 Contact email: zroesch@producedwatersociety.com Contact Phone: 512 961 5693