**DE-FOA-0002731**

**DE-FOA-0002731: BIPARTISAN INFRASTRUCTURE LAW: SECTION 41006. WATER POWER PROJECTS: INNOVATIVE TECHNOLOGIES TO ENABLE LOW IMPACT HYDROPOWER AND PUMPED STORAGE HYDROPOWER GROWTH**

UPDATED JANUARY 18, 2023

| Organization Name | Contact Name | Organization Type | Area of Technical Expertise | Description of Capabilities | Contact Information (Email, Address, Phone #) |
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| Marine Hydrokinetic Reaction Generator | Mark McKinley | Individual | Open-Flow Hydrokinetic Generation | The Hydrokinetic Reaction Generator differentiates itself from other open-flow hydrokinetic concepts with its capability of extracting significantly more energy from a given water current. This provides a more economically viable solution for capturing and generating hydrokinetic energy in canals, rivers, and along the coast.<br><br>Topic Area 1) The Reaction Generator can be installed directly downstream of an existing Non Powered Dam's outlet structure. The outlet structure will supply water into the open channel of the Reaction Generator. This minimizes retrofitting activity to the Dam while providing a relatively predictable and consistent flow to the Reaction Generator.<br><br>Topic Area 2) The Reaction Generator's ability to capture energy in canals and rivers makes it a superior candidate for low head pumped storage facilities; reservoirs connected by canals. By reducing the pumped storage systems' required change in elevation expands the range of viable sites. This includes the ability to install pumped storage in coastal regions that are not prime real estate for traditional pump storage technology.<br><br>Advancements in hydrokinetic current energy converters (HCEC) can drive pump storage technology. The future of renewable energy is looking to the US coast lines with offshore wind, wave, and tidal current. Wind and tidal current energy production will not match up with the energy demand. The tide tables change daily and wind is unpredictable. So energy storage will be a key factor in balancing renewable energy supply with energy demand. Pump storage is a possibility; however, most coastal areas are plains with limited elevation change. This is not prime real estate for traditional pump storage technology because of their head requirements. To develop pump storage facilities along the coast of the United States, close to the point of green energy production, requires Low Head Pump Storage. HCEC are key components of Low Head Pump Storage systems. | MHydroK@gmail.com<br>703-307-5948 |

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| St. Anthony Falls Laboratory, University of Minnesota | Jeff Marr | University hydraulic research laboratory | hydropower, water hydraulics, physical modeling, computational modeling, prototype design and fabrication, sensors and data acquisition, hydropower environmental mitigation (water quality, sediment bypass, fish passage). | The St. Anthony Falls Laboratory is an inter-disciplinary research facility of the College of Science and Engineering at the University of Minnesota. The facility was constructed in 1938 at the 45-ft St. Anthony Falls on the Mississippi River in Minneapolis, Minnesota. In addition to basic research and educational activities associated with the University, SAFL's Applied Research and Engineering team is actively engaged in applied research, design, and testing for public and private collaborators in the areas of environmental and transportation hydraulics, river engineering, energy systems, and urban stormwater. SAFL often teams with innovators and consultants to integrate our specialized analysis and testing capabilities into larger engineering projects. Area of Interest: Topic Area 1, 2 and 3. | Marrx003@umn.edu<br>St. Anthony Falls Laboratory, 2 Third Ave SE, Minneapolis, MN 55414, USA<br>612-624-4427 |
| Idaho National Laboratory (INL) | Hill Balliet | National Laboratory | Techno-economic assessment, hardware in the loop testing, control development, power system modeling | INL has developed tools for identifying the potential for powering non-powered dams and for determining the value of hybridizing hydropower plants. INL also has a state-of-the-art experimental laboratory space for hardware in the loop testing.<br><br>INL is interested in contributing to any of the three topics. | William.balliet@inl.gov<br>1955 N Fremont Ave, Idaho Falls, ID 83415<br>205-572-0815 |
| Sarcos Technology and Robotics Corp | Jonathan Pietrangelo | Small Business | Underwater intelligent mobile manipulation, outdoor detection & perception in unstructured environments, autonomy | The Guardian Sea Class robotic system provides human-like manipulation capability in complex underwater environments. Whether used for commercial applications, industrial tasks, or military operations, the system can reduce the need to put divers in the water--and explore depths that are unsafe for humans. An electro-mechanical system that can stay submerged for up to two hours at a time, it remains fully operational in depths up to 1 kilometer. The system is designed to be operated with one or two identical arms that can be teleoperated with the Imitative Controller (IC) or optional autonomous and semi-autonomous control. The electro-mechanical system's low-power stand-by state enables the use of mobile power sources and helps extend run time for enhanced productivity. | j.pietrangelo@sarcos.com<br>650 S 500 W<br>Salt Lake City, UT 84101<br>330-256-7913 |

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| Advanced Energy Systems LLC | Tim Olsen | LLC; engineering consultancy | Renewable energy project engineers | Structural, mechanical, hydraulic, electrical, controls, and system engineering for renewable energy systems, including hydropower, solar, and wind. Additional hydropower specialties include rapid feasibility toolbox, low-cost equipment identification, efficient system integration, and water/power delivery optimization. | tolsen@windtechnology.com<br>1428 S Humboldt St<br>Denver, CO 80210<br>303-777-3341 |