				OCED FY2023 D	E-FOA-0003139 Distributed Energy Updated 11/2/2023	Systems Demonstrations	
	Organization Name	Contact Name	Contact Information (phone, email, address, etc.)	Organization Type	Area of Technical Expertise	Description of Capabilities	Description of Need in a Partner
1	. Slipstream	David Vigliotta	Phone: 608-210-7143 Email: dvigliotta@slipstreaminc.org Address: 431 Charmany Drive, Madison, WI 53719	Nonprofit	 Distributed energy resources Distributed energy systems Grid flexibility Grid-interactive efficient buildings Advanced building controls Building decarbonization Commercial building electrification Smart buildings Microgrids Workforce development Education and training Stakeholder facilitation Community energy planning Cultivating public, private and utility partnerships 	Slipstream is a leading expert in the fields of engineering, implementation, and analysis, particularly focusing on building decarbonization, emerging technologies, electrification, advanced building controls and grid-interactive efficient buildings. Our ongoing research involves monitoring the performance of complex technologies including distributed energy resources (DER) and distributed energy systems (DES). We lead the measurement & verification of advanced technologies in collaboration with key partners such as vendors, building owners, municipalities and utilities, often in partnership with the Department of Energy and the Department of Defense. Our team of engineers not only excels in technical expertise but also in project management—handling complex projects that involve large budgets and multiple stakeholders. As a mission-driven nonprofit, we offer a wealth of experience in developing educational materials and facilitating technical knowledge transfer to help transform the market to clean energy sector. Slipstream's expertise spans diverse areas, encompassing data analysis, visualization, and impact assessments. Additionally, we specialize in developing strategic climate and energy plans tailored for municipalities and local government entities, assisting them in pursuit of their carbon and energy reduction goals.	Utility that wants to pursue DER.
â	Blumen Systems Inc	Mike Mattimoe	Email: mike@blumensystems.com State: CA	Small business	Built and operated a data application for siting and permitting intelligence deployed with customers across 10 states.	 Siting and permitting regulation at federal, state, and municipal levels. Full stack software development GIS / mapping software Data aggregation and integration LLM / AI / ML software integration Developing modern software based workflows for complex processes 	
3	FedSprout	Aalap Shah	Phone: +1 (844) 394-7268 Email: ashah@fedsprout.com Address: Princeton, NJ 0854, USA Website Address: www.fedsprout.com	For Profit	Community Benefits Planning for Proposals, Community Engagement, Implementation of Community Benefits Plans, Clean Energy Demonstration Planning. We are experts in community engagement, workforce development, DEIA, and Justice 40.	We have subject matter experts that help write, strategize, and implement community benefits plans for proposals and projects. We have experts in clean energy and utilities that can assist with demonstration planning.	Partnering for Community Benefits, Successful Demonstration Planning
2	Element One Energy, LLC	Jim Corboy	Phone: 303.601.3535 Email: jcorboy@element1nrg.com	Limited Liability company	Electrolyzers and storage	Structural, mechanical, electrical engineering services, electrolysis manufacturing & deployment	A municipality or utility that seeks our expertise
	Electric Advisors Consulting, LLC (EAC)	Frank Lacey	 Organization's Website: www.electricadvisorsconsulting.com. Contact Address: 3 Traylor Drive, West Chester, PA 19382 Contact Email: frank@eacpower.com Contact Phone: 610-793-2809 	Small Business	Energy markets, state energy policy, federal energy policy, renewable energy, sustainability, risk management, energy procurement, Demand Response, Distributed Energy Resources, solar, storage, EV charging.	EAC is an independently owned, niche consulting firm specializing in regulation and policy analysis. Frank Lacey has a 30 year background in energy regulation and policy, supported by a masters degree with concentrations in Finance and Environmental Management. EAC can provide comprehensive expertise on issues related to energy markets. This includes navigating and understanding how complex state and federal energy regulations impact your business (for good or for bad) and providing assistance with areas of energy market participation (procurement, market participation, risk management, demand response, distributed energy resources, etc.). We help companies understand that even if they are large consumers of energy, they have an "energy portfolio" that might be able to provide value in the market and that they can receive compensation for providing that value. EAC has a network of independent consultants whom can be called upon to support individual projects, if needed.	We are interested in working with end use consumers of electricity and natural gas and/or energy market participants to help consumers optimize the value of their energy portfolio.

6	National Renewable Energy Laboratory (NREL)	William Tokash	william.tokash@nrel.gov	DOE National Laboratory	Utility customers solutions strategy development expertise in the new clean energy models for distributed energy resources (DER), utility-scale renewable energy procurement and workplace and fleet electrification supporting at-scale decarbonization and net zero clean energy targets in the commercial & industrial (C&I) sector.	NREL staff's specific commercial & industrial (C&I) sector utility expertise includes the development of: -Innovative renewable energy procurement tariff development, -DER interconnection approvals program and customer engagement strategy -Federal Energy Resource Commission (FERC) 2222 customer engagement strategy -Non-wires demand reduction and resiliency strategies -Industrial demand response customer engagement strategy -Customer electric vehicle (EV) customer programs, including *Commercial & industrial fleet electrification advisory work, *EV charging equipment sales referral program development, and *DC fast charging customer engagement strategy support for the IIJA's National *Electric Vehicle Infrastructure (NEVI) program	Vertically-integrated utility interested in innovative vehicle electrification managed charging and fleet charging business model and technology pilots to support customer decarbonization and utility load growth. Vertically-integrated utility interested in innovative virtual power plant (VPP) and demand response business model and technology pilots that reduce peak loads and support customer resilience.
7	NREL	Utkarsh Kumar	<u>utkarsh.kumar@nrel.gov</u>	DOE National Laboratory	Flexible DER integration and Aggregation, DER controls, Distributed Energy Resouce Management Systesm (DERMS) controls and analysis.	 Frameworks for feasibly aggregating and integrating large-scale flexible DERs behind the customer meter with respect to various grid-service use-cases. Optimal controls at the DERMS level to send feasible service requests to the aggregators, and controls for the aggregators to dispatch the aggregated DERs for grid services. Cost-benefit analysis regarding feasibility of such controls, i.e., whether it makes sense for aggregators/customers to participate in such aggregation programs, and the resulting impacts on customer comfort. We have also tested these aggregation approaches and controls both in NREL labs using the advanced distribution management systems (ADMS) test-bed environment and, importantly, in the field in a community in Colorado. 	Distribution utility, DERMS provider, Aggregator
8	NREL	Michael Blonsky	Michael.Blonsky@nrel.gov	DOE National Laboratory	Flexible load modeling	 Residential DER modeling and control (OCHRE). Commercial building DER modeling and control (Alfalfa). MW-scale grid emulation platform (SEAS, part of ARIES, R&D100 winner this year). 	Distribution utility, DERMS provider
9	NREL	Amanda Kolker	amanda.kolker@nrel.gov	DOE National Laboratory	Geothermal technologies, technoeconomic-analysis, design, and system deployment.	NREL's geothermal research team has capabilities in techno-economic and performance analysis of geothermal technologies for power, heating/cooling, storage, and lithium extraction; geothermal exploration and resource assessment including play fairway analysis, value of information and spatial statistics; subsurface characterization and reservoir modeling; drilling innovations and well repurposing; surface plant design (electricity and direct-use); data science and machine learning; database curation; regulatory, policy and market analysis; community technical assistance; and workforce development and training.	Distribution utility, DERMS provider
10	NREL	Rasel Mahmud	<u>rasel.mahmud@nrel.gov</u>	DOE National Laboratory	DER interoperability, data acquisition systems, sensor development and tsting, field sensor and instrumentation development and deployment.	As a subrecipient, NREL can bring expertise and laboratory facilities to assist the project team in meeting the project's objectives in the following ways: 1) Assist with design, development and testing of strategies for grid-edge DER interoperability and control. 2) Assist with design, development and testing of data acquisition systems, sensors and instrumentation for field measurement. 3) Assist with design, development and prototyping of data management strategy, data collection, processing, and visualization. 4) Assist with development of materials for training, outreach and project data sharing.	Distribution utility, DERMS provider

11	NREL	Annabelle Pratt	Phone: 720-456-5197 Email: annabelle.pratt@nrel.gov	DOE National Laboratory	Laboratory evaluation of grid controls, including real-time, controller- and power hardware- in-the-loop (CHIL/PHIL) simulation.	NREL can provide realistic laboratory evaluation of commercial and pre-commercial grid control solutions, such as ADMS and DERMS. We build a realistic, real-time representation (or "digital twin") of a real or representative distribution power system that includes behind-the-meter (BTM) and utility-scale DER. We then interface the digital twin with commercial or pre-commercial grid management software, such as an ADMS, a DERMS, VPP or aggregator, through industry-standard communications protocols. The digital twin and grid management software can also be interfaced with power or controller hardware such as battery inverters, capacitor bank controllers, electric vehicles, electric water heaters or air conditioners.	Utility that wants to evaluate grid controls/grid control architecture in a realistic laboratory environment prior to field deployment to derisk field testing.
12	NREL	Mengmeng Cai	mengmeng.cai@nrel.gov	DOE National Laboratory	Market Participation Modeling, Transactive Energy system Design.	 Aggregated DER market participation model for bidding in reserve market considering uncertainties associated with end-use behaviors and real-time energy imbalance. (software record: FLARE). Transactive energy system design which provides market solutions for incentivizing DERs' flexibility at the distribution-level. 	Distribution utility, DERMS provider
13	NREL	Bryan Palmintier	Brvan.Palmintier@nrel.gov	DOE National Laboratory	DERs, Modeling, analysis, techno- economic assesment.	NREL brings over 45 years of world-leading expertise in all types of distributed energy resources and in the integration of complex systems with the grid at all scales. This includes advanced modeling, analysis, simulation, planning, techno-economic assessment, resource data, and fully configurable hardware-grid-control testing at scales up to 20MW. We have experience working with utilities, ISOs, vendors, aggregators, communities, and other stakeholders of all sizes, regulatory structures, and technical designs from all across the U.S. (and internationally). -During Phase 1: Planning, NREL can help with advanced tools, data, and analysis to help assure technical and economic viability. -During Phase 2: NREL can help with updating the assessments from Phase 1, design reviews, and notably with parallel de-risking activities for early simulation and lab-based testing and refinement of proposed coordination schemes. This stage can also include in-depth support on early cyber-security and other control/communication system engagement to ensure their inclusion is integrally incorporated into the system at design time, rather than attempted to be added in later, likely at higher costs and with less effectiveness. -During Phase 4: NREL can continue to help with de-risking with the potential for full-scale, full-power testing of multiple DER integration into distributed energy systems. -During Phase 4: NREL can continue all of the above support along with: Sustained data collection, data analytics, and management; Outreach, education, training; Assessment of effectiveness and comparison to expected behavior; And on-going active improvement and synthesis of best practices and future improvements.	Distribution utility, DERMS provider

14 NREL	Brittany Speetles	brittany.speetles@nrel.gov	DOE National Laboratory	Energy Justice, technoeconomic analysis, workforce development, Industrial decarbonization	 Human dimensions of the energy transition and energy justice & place-based energy initiatives, to drive engagement with communities, foundations, academia, training and vocational institutions through work such as C2C, CLEAP, and OCED Rural Technical Assistance programs Projects exploring the regulatory angle of DSOs/TSOs and RTOs/ISOs Device response and aggregation to complement DERs (virtual power plants), Looking at flexible, aggregated devices as a type of non-wires alternatives to circumvent capital investment, Strategic planning and technoeconomic analysis through tools such as SAM, REopt, and Gen, which mostly consider distributed energy resources, Thought leadership on workforce development and energy justice impacts, Industrial decarbonization especially of the steel industry, International perspective through work with USAID, DoS and DOE including minigrid and microgrid planning to meet resilience and reliability goals 	A utility that is interested in developing visibility in the utility- distribution interface and/or exploring how flexible resources can be used to support grid services such as peak shaving
15 NREL	lan Baring-Gould	ian.baring-gould@nrel.gov	DOE National Laboratory	Distributed Wind Aeroelastic Modeling; High- and mid-fidelity modeling of fluids and structures; High-performance computing; Validation, predictive modeling, and simulation-Software engineering for open-source community codes such as OpenFAST	 Detailed local and regional assessments of distributed wind energy development potential to support performance, zoning, and community-based siting engagement. Development and implementation of regional distributed energy-based, energy resilience planning for residential, commercial, industrial and public sector services Development and testing of public and private sector, multi-technology distributed energy microgrid system and controller validation, modeling, and simulation for deployment at municipal or cooperative scale. Detailed local and regional assessments of distributed manufacturing and operations, including maintenance, decommissioning, recycling, and reuse of renewable energy systems, including wind turbine systems, power electronics, and PV modules to improve local revenue retention. Environmental Process and Impact Assessment of wide scale distributed energy deployment. Community benefit assessments, including direct impact engagement of disadvantaged and front-line communities, for wind, solar and other distributed energy resources. Workforce pathway analysis and program development for community-based K through 20 education systems, including vocational and apprenticeship program development with a focus on distributed energy systems. -Regulatory support to local, state, and federal land and planning offices associated with permitting, siting and construction of distributed energy systems. 	Distribution utility, DERMS provider
16 NREL	Sivasathya Pradha Balamurugan	Sivasathya Pradha. Balamurugan@nrel.gov	DOE National Laboratory	Energy systems integration simulation, Energy blockchain, and cybersecurity	ARIES cyber range capability can be leveraged by partners to study the energy systems integration with both physical systems and digital communication. The cyber range provides the ability to virtualize, emulate, and visualize energy systems, with the fidelity needed to represent future energy and telecommunication systems—from individual devices to regional grids. It is also possible to connect the simulation environment to hardware within NREL to perform hardware-in-the-loop type of simulations.	Distribution utility, DERMS provider

17 (NREL	Kathleen Krah	<u>kathleen.krah@nrel.gov</u>	DOE National Laboratory	DERs, techno-economic optimization, virtual power plants, REopt, utility-wide evaluation	Our team specializes in techno-economic modeling and optimization of DERs sizing and economic dispatch. Our tool, REopt, allow users to identify cost-optimal DER system sizing and dispatch to help a consumer (residential, commercial, industrial) meet energy cost savings, decarbonization, resilience, and energy justice goals given detailed utility rate modeling. REopt is a publicly available web tool and open source code (API and Julia package). REopt can be integrated with other tools, such as Sienna (grid-scale modeling) and dGEN (DER adoption), to co-optimize and quantify the value of DER assets from various perspectives, including behind-the-meter customers, aggregators, and utilities/co-ops, and could also consider the impact of changes in price signals and exploratory rate designs. Additionally, REopt can integrate with ARIES for economic supervisory control of DER assets	Distribution utility, DERMS provider
18	Flex Power Control, Inc.	Gregory S. Smith	Contact Address: 24907 Vista Verenda, Woodland Hills, CA 91367 Contact Email: gregory.smith@flxpwr.com Contact Phone: (818) 522-7067 Website: flxpwr.com	For Profit	Intelligent energy management system product development company. Home Energy Management System that integrates solar, stationary battery, and EV. Replacing the solar inverter, battery converter, and vehicle charger.	Intelligent energy management system that offers unparalleled value to consumers, utilities, and vehicle OEMs. SPIN stands at the forefront of technology, seamlessly integrating solar, stationary battery, and electric vehicles. By replacing traditional solar inverters, battery converters, and vehicle chargers, SPIN redefines energy management with its advanced capabilities. At its core, SPIN harnesses the power of real-time analytics to create precise energy profiles for homes, accurately forecasting energy production and consumption. What sets SPIN apart is its autonomous power control, tailored to meet specific constraints and objectives. These parameters are defined collaboratively by the consumer, utility, vehicle OEM, and by available system resources. Consumers enjoy the flexibility of setting preferences, whether it's optimizing for the lowest energy costs and/or ensuring backup power for a specific duration and/or participating in grid services. Utilities can communicate real- time signals, aligning grid needs with SPIN's capabilities. Vehicle OEMs have the ability to establish permission levels, governing battery charge and discharge protocols. Notably, SPIN offers a comprehensive home power backup solution, effectively islanding the home and that even includes blackstart capabilities. SPIN is not merely a system; it's a transformative energy solution, emowering users and enhancing the resilience of our energy infrastructure.	Partner with utility or grid service provider to demonstrate an intelligent integrated Distributed Energy Resource (DER) system. Providing unparalleled value to all stakeholders.
19	Kraken Technologies Inc	Matt Wapples / Joe Bradshaw	Organization's Website Address: https://kraken.tech/ & https://www.krakenflex.com/ Contact Address: Uk House, 5th Floor, 164-182 Oxford Street, London, United Kingdom, W1D 1NN Contact Email: matt.wapples@krakenflex.com / joe.bradshaw@krakenflex.com Contact Phone: +44 7573 027847 / +44 7385 562994	Large Business	Transport / Storage / Grid / Power generation Technologies	The Kraken solution enables utilities to intelligently control, manage and optimize distributed energy resources (DER) of all sizes and scales to support greenhouse gas emissions goals while simultaneously using DERs to alleviate transmission and distribution system constraints. Our comprehensive Distributed Energy Resource Management Solution (DERMS) helps utilities create a smarter, dynamic, and more fluid grid through enabling the deployment of flexible grid resources. The KrakenFlex product can integrate into traditionally "dumb" devices, enabling them to be smartly dispatched as a dynamic resource, responding at sub-secondary levels and fluidly varying energy output to help utilities create a future focused energy grid for their customers and stakeholders. We are already delivering such capabilities across the globe with 4.6GW contracted and 30,129 dispatchable DER on the platform.	

20 The Ohio State University	dress: 930 Kinnear Rd, Columbus Oh 43202 ail: darpino.2@osu.edu .57 Academia ttps://mae.osu.edu/people/darpino.2	y Matilde D'Arpino	Modeling and control of Academia Distributed Energy Sources and microgrids.	 Power conversion and energy storage modeling, control, and diagnostic for grid-connected applications. Design and control of energy storage integrated in microgrid and power systems, lifetime analysis, economic analysis, grid ancillary services and demand response. Optimal control and energy management for microgrid and integrated DERs in competitive market, including grid services. Several objectives, such as increase revenue, reduce emissions, increase NPV, improve efficiency. System integration and prototyping up to MW scale 	Partner with utility or grid service provider to demonstrate a control strategies for Distributed Energy Resource system.
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