

REDUCING EMISSIONS USING METHANOTROPHIC ORGANISMS FOR TRANSPORTATION ENERGY Teaming List

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This document contains the list of potential teaming partners for the REDUCING EMISSIONS USING METHANOTROPHIC ORGANISMS FOR TRANSPORTATION ENERGY, solicited in RFI-000001 and is published on ARPA-E eXCHANGE (<https://arpa-e-foa.energy.gov>), ARPA-E's online application portal. This list will periodically undergo an update as organizations request to be added to this teaming list. If you wish for your organization to be added to this list please refer to <https://arpa-e-foa.energy.gov/> for instructions. **By enabling and publishing the REDUCING EMISSIONS USING METHANOTROPHIC ORGANISMS FOR TRANSPORTATION ENERGY Teaming List, ARPA-E is not endorsing or otherwise evaluating the qualifications of the entities that are self-identifying themselves for placement on this Teaming List.**

Organization	Name	Organization Type	Area of Expertise	Background	Website	Email	Phone	Address
Abengoa Research	Maria R. Gomez Garcia	Business < 500 Employees	Bioenergy	Research is Abengoa's division solely dedicated to perform fundamental research in the strategic areas of the company, including bioenergy. Abengoa is a 22,000+ employees Spanish corporation focused on renewables and energy, with a turnover of over 7 billion euro. In our headquarters at Seville we have a team of experienced researchers in synthetic biology, focused on biofuel production, as well as the capability to perform test in Abengoa Bioenergy's pilot plants and extensive laboratory premises and equipment.	http://www.abengoa.com/web/en/index3.html	rosario.gomez@research.abengoa.com	34 954935341	Abengoa Research, Campus Palmas Altas, C/ Energía Solar nº 1, Palmas Altas, 41014, Seville, Spain, +34954935341 Cell: +34686574034
Auburn University	Jin Wang	University	Bioenergy	Our research focuses on two areas: (1) model-based process development for sustainable fuels production through biological conversions, and (2) integration of extractive fermentation with chemical catalysis for direct drop-in fuels production. Besides genetic manipulation, manipulating extracellular environment could be a highly effective way to drive the microbes to produce the desired products. Along this idea, our capacities include: 1.Apply genome-scale metabolic network models to guide the design of environmental factors, such as optimal feeding strategy (of multiple substrates) to drive the carbon and electron flows; 2.Continuous online monitoring of the bioreactor system, including real-time measurements of key extracellular metabolites, cell mass, etc.; Automatic, accurate, model-based control of bioreactor; 3.Integration of extractive fermentation (to reduce product inhibition) with catalytic conversion to upgrade the short chain hydrocarbons into drop-in fuels.	http://wp.auburn.edu/wangroup	wang@auburn.edu	(334) 844-2020	318 Ross Hall, Department of Chemical Engineering, Auburn University, AL 36849

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Blue Marble Biomaterials	Terri Mavencamp	Business < 500 Employees	None of the above	Blue Marble Bio Materials is a private company that specializes in petrochemical replacement chemicals, particularly esters, natural products and sulfur analogues. Our areas of focus include, anaerobic fermentation and complex algae systems with the capabilities to convert methane to low carbon alkanes. Our production building houses a 100,000-liter per month fermentation facility, 2,000- liter algae growth tanks, GCMS, GC-FID and UV-Vis among other standard laboratory analysis including protein, carbohydrate, lipid and water content analysis.	http://bluemarblebio.com	terri.mavencamp@bluemarblebio.com	4065492100	5653 Alloy S., Missoula MT, 59808
Calysta Energy	Josh Silverman	Business < 500 Employees	Bioenergy	Calysta Energy is a privately-held synthetic biology company focused on biological engineering located in Menlo Park, CA. Calysta is currently applying its expertise in gene interrogation, enzyme discovery and protein/metabolic pathway engineering to create new activities for the production of high-value fuels and chemicals from currently underutilized domestic feedstocks such as methane. The Calysta team is comprised of leaders in the fields of biotechnology, biochemistry, agricultural and specialty chemicals and has extensive experience in technology R&D and the management of commercial and government-funded R&D projects. Calysta's parent company, DNA2.0 Inc. (www.dna20.com), is the largest US-based provider of synthetic genes. The facility has 15,323 sq. ft. of laboratory space, approximately 8,000 square feet of office space, and is equipped with state-of-the-art molecular biology, fermentation, and analytical equipment.	www.calystaenergy.com	jsilverman@calystaenergy.com	650-492-6880	1140 O'Brien Dr Menlo Park CA 94025
Carbon Forge, LLC	Keith Armstrong	Business < 500 Employees	Rampable Intermittent Dispatchable Storage Technologies	Research in the design of a 10 GPa pump/reactor to endothermically synthesize long-chain hydrocarbon fuels directly from chemically oxidized raw materials such as carbon dioxide or bio-gas or glucose and water at pressures of over 1,000,000 psi. with no intervening steps and an over-all thermodynamic efficiency of 60+ %.	www.carbonforge.com	karmstrong@carbonforge.com	(903)-814-8014	4851 Hwy 11, Sherman TX 75090
CO2-Fuel, LLC	Paul Katona / John Jasbinsek	Business < 500 Employees	Other	CO2-Fuel, LLC has a Proven, Patented and Patent Pending process that can be optionally operated as follows, Simultaneous injection of Carbon Dioxide Gas (CO2) and any of the following or similar Hydrocarbon Gas Streams; Methane Gas, Natural Gas or Gasification Hydrocarbon Gas, into our Conversion Reactor to generate a Hydro-carbon and or Carbon, (C), and Hydrogen, (H), intermediate stream, suitable for synthesis of liquid fuels for further processing into low sulfur diesel fuel, gasoline, aviation fuel or any other Hydro-carbon product, according to the Fischer-Tropsch Process.	none	katonabuilt@roadrunner.com	(909) 374-7184	818 Calle Del Sol, Upland, CA 91784

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Colorado State University	Ken Reardon	University	Bioenergy	Proteomics (for characterization of engineered organisms or impacts of environmental conditions); Bioprocess engineering, especially novel bioreactor designs; Molecular microbial ecology (genomic, transcriptomic, and proteomic methods of characterizing microbial communities)	http://www.engr.colostate.edu/~reardon	kenneth.reardon@colostate.edu	970-491-6505	Department of Chemical and Biological Engineering, Colorado State University, 1370 Campus Delivery, Fort Collins, CO 80523
Colorado State University	Christopher Snow	University	Bioenergy	The Snow laboratory is working on improving the methodology of rationally engineering enzymes. We have a particular interest in engineering enzymes with bioenergy applications including methane monooxygenase. In addition to designing enzymes (and improving our software to do so), we express, purify, and crystallize the designed proteins.	http://www.engr.colostate.edu/~cdasnow/	Christopher.Snow@colostate.edu	970-491-5276	1370 Campus Delivery. Fort Collins, CO, 80523-1370
Czero	Guy Babbitt	Business < 500 Employees	Transportation	Czero is a premier engineering service company that specializes in working with startup companies to accelerate new technology development in the areas of clean tech, automotive and hydraulic systems. Our strength lies in our ability to take our clients rough idea and work with their team to quickly and cost effectively generate robust prototypes to demonstrate proof of concept, yet are applicable to high volume production. We are an analytically based company and have the capability to do detailed analysis work such as FEA, CFD, dynamic simulations, magnetic modeling, high bandwidth hydraulic simulation, electronic controls, 3-d solid modeling (CAD) work, make prints and use GD&T.. We combine those skills with strong hands on experience and hard work to rapidly develop new technologies and IP for our customers. We are currently working on another ARPA-E project	320 E Vine Drive	guy.babbitt@czero-solutions.com	(719) 331-9662	320 E Vine Drive, Suite 325 Fort Collins CO 80524
Enbiofeer	Mustafa Vohra	Individual	Bioenergy	Use of microorganisms for biofuel and biochemical production, Strain development, Ethanol and butanol production from lignocellulosic waste, Methane production, Gas fermentation, polyol production, Design of bioreactors, handling yeast, lactobacillus, anaerobic bacteria, methanogenic consortia. I have a proposed system, which can produce methanol from natural gas using methanotropic microbes with a conversion efficiency > 70 %. According to the proposed route the theoretical conversion of carbon for methane to methanol should be 100% without use of genetically modified microbes. The proposed system also allows us to semi-continuously produce methanol without product inhibition. I am looking for a partner with whom I can join and work with them.	enbiofeer@googlegroups.com	mustafa_vohra1@yahoo.co.in	9.1981180565e+011	E97, B.K.Dutt colony, Lodhi Road. New-Delhi. India 110003

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Gas Technology Institute	Al Darzins	Non-Profit	Bioenergy	Gas Technology Institute (GTI) is the leading research, development and training organization addressing energy and environmental challenges to enable a secure, abundant, and affordable energy future. We provide economic value to the natural gas industry and energy markets by developing technology-based solutions for industry, government, and consumers. Our expertise in mechanical, chemical, civil, environmental and bioprocessing engineering enables us to bring technology concepts to maturity and to develop and test advanced energy technologies from laboratory to large pilot scale. GTI's biotechnology program is exploring options to use methane as a feedstock to produce liquid transportation fuels and value-added chemicals. GTI is also a world leader in biomass conversion R&D, and from this strong foundation GTI was able to develop a new economical technology, Integrated Hydrolysis and Hydroconversion (IH2) for the direct conversion of biomass into liquid transportation fuels.	http://www.gas-technology.org/Pages/default.aspx	al.darzins@gas-technology.org	247-768-0688	1700 South Mount Prospect Road, Des Plaines, IL 60018
GDTTek, Inc	Maxine Pierson	Business < 500 Employees	Bioenergy	, GDTTek, Inc., is a publicly traded company, and engaged in the market of utilizing low temperature heat sources to produce electricity. It has licensed waste heat to electric power generation technology and is driving its adoption by power plants, landfills and other waste-heat generating industries. Also manufacture of RDF Pellets	www.gdttek.com	maxinep@aol.com	5612923824	10452 Greentrail Dr No Boynton Beach FL 33436
Genifuel Corporation	James Oyler	Business < 500 Employees	Bioenergy	Genifuel Corporation makes compact equipment to produce renewable methane from wet organic wastes. If this methane were used as the feed for a methane-to-liquids process, then those liquid fuels would also be renewable fuels. This immediately solves two problems--clean disposal of difficult wet wastes, and production of renewable liquid fuels. The amount of wet waste materials worldwide is enormous and could produce up to 10% of current fossil liquid fuels. The process is called Catalytic Hydrothermal Gasification (CHG). CHG produces methane directly from wet organic material in a single step with no energy-intensive drying. The process is highly efficient, has been tested on a wide variety of organic wastes, and converts more than 99% of the organic material into methane gas together with clean, sterile water. Genifuel would welcome the opportunity to team with other partners to join the production of renewable methane to the conversion into liquid fuels.	http://www.genifuel.com	jim@genifuel.com	801-467-9976	1873 Carrigan Cir., Salt Lake City, UT 84109
Ginkgo Bioworks	Curt Fischer	Business < 500 Employees	Bioenergy	Industrial, high-throughput synthetic biology and metabolic engineering. Platform C1 organism for methanol, formate, and CO2 bioconversion.	http://ginkgobioworks.com/	curt@ginkgobioworks.com	510-666-7726	27 Drydock Ave. / Boston, MA 02210

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GreenLight Biosciences	Marta Ortega-Valle	Business < 500 Employees	Bioenergy	GreenLight Biosciences is a privately-held biotechnology company focused on production of chemicals and fuels using a novel bio-manufacturing platform that leverages proprietary breakthroughs in cell-free production. GreenLight has extensive experience in metabolic engineering, large-scale bioprocess development and implementation, and was co-founded, and is currently advised, by Professor James Swartz, a pioneer in cell-free biology. GreenLight has the ability to combine biological reaction systems in a single, well-controlled and directly accessible cell-free reaction, enabling rapid development and high volumetric productivities and product yields from multiple feedstocks.	www.glbiosciences.com	mortega@glbiosciences.com	857-756-5688	196 Boston Av. 2400, Medford, MA 02155
Institute of Marine & Environmental Technology, University of Maryland	Kevin Sowers	University	Bioenergy	Kevin R. Sowers, Ph.D. is an anaerobic microbiologist with over 30 years experience in biomass conversion to methane. Current research projects include biology of biogas production by the methanogenic Archaea including the regulatory mechanisms of archaeal gene expression, physiological responses of Archaea to extreme conditions and application of methanogenic processes for biomass conversion. Additional experience includes the identification and isolation of difficult-to-grow microorganisms, physiology of methanogenic pathways, genetic modification of methanogenic Archaea with unique degradative capabilities and anaerobic scale-up of biomass.	http://userpages.umbc.edu/~sowers/	sowers@umbc.edu	410.234.8878	Institute of Marine & Environmental Technology, 701 E. Pratt St. Baltimore, MD 21202 USA
Iowa Energy Center	Norman Olson	University	Bioenergy	The Iowa Energy Center (IEC) has a robust RD&D program focused on the conversion of biomass to fuels and chemicals. The Biomass Energy CONversion (BECON) facility, a key component of the IEC's efforts to help commercialize bio-based technologies, works with partnering organizations to pilot biological and thermochemical processes at the pre-commercial stage. The facility features high-bay space, a wet lab, office space, excellent utility access, in-house safety and environmental support, a machine shop, large parking lots and lay-down areas, vacant land for expansion, and an excellent mechanical-system and infrastructure support staff. The BECON facility is located in an industrial park in Nevada, Iowa, just 8 miles from Iowa State University, a leader in bio-based fuels and chemical research and where extensive additional capabilities exist. The Iowa Energy Center has the capability of providing matching funds for federal programs.	www.iowaenergycenter.org	nolson@iastate.edu	515-382-1774	1521 West F Avenue

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Iowa State University	Alan A, DiSpirito	University	Bioenergy	My research interests and expertise focus on the physiology, biochemistry, and ecology of methanotrophic, chemoautotrophic and photoautotrophic bacteria. I have a strong background in the cultivation, manipulation, and characterization of these unique microorganisms. With respect to this project, I have worked extensively on both aerobic methane oxidizing bacteria (AMOB) as well as aerobic ammonia bacteria (AAOB). Our projects include the isolation and characterization of several key enzymes and respiratory components involved in both methane and ammonia oxidation. Other projects include the use of methanotrophs in bioremediation process, the regulation of the two methane monooxygenases, copper acquisition systems in methanotrophs, and the biochemical characterization of methanobactin a unique copper binding compound produced by AMOB.	http://www.bbmb.iastate.edu/alan-dispirito/	aland@iastate.edu	515-294-2944	Roy J. Carver Department of Biochemistry, Biophysics and Molecular Biology, 4114 Molecular Biology Building, Ames IA 50011
IUPUI	Peter J. Schubert, Ph.D., P.E.	University	Renewable power (non-bio)	Single-step conversion of methane and syngas to low-C alkanes. Method to produce clean syngas from biomass.	LugarEnergyCenter.org	pjschube@iupui.edu	317-278-0812	799 W. Michigan St., ET 215D, Indianapolis, IN 46202
Lawrence Berkeley National Laboratory	Steven Singer	Federally Funded Research and Development Center (FFRDC)	Bioenergy	Applying metabolic engineering strategies and synthetic biology tools to produce fatty acid and isoprenoid-derived biofuels in non-model organisms	www.lbl.gov	SWSinger@lbl.gov	510-486-5556	Joint BioEnergy Institute, 5885 Hollis Street, Emeryville, CA 94608
Lawrence Berkeley National Laboratory	Corinne Scown	Federally Funded Research and Development Center (FFRDC)	Bioenergy	Emerging Technology Assessment Team has expertise in life-cycle environmental modeling, scale-up scenario development & modeling in GIS, chemical process modeling, life-cycle costing, and environmental impact assessment. We are looking to partner with a team focused on technology development.	http://www.lbl.gov/	cdscown@lbl.gov	510-486-4507	1 Cyclotron Road, Berkeley, CA 94720
Lawrence Berkeley National Laboratory	Christer Jansson	Federally Funded Research and Development Center (FFRDC)	Bioenergy	Metabolic engineering of plants, algae and cyanobacteria; Metabolic pathways for lipid and carbohydrate biosynthesis; Photosynthesis; Alkane biosynthesis in cyanobacteria; Collaborations with the Advanced Light Source (ALS), the Joint Genome Institute (JGI), and UC Berkeley.	http://esd.lbl.gov/about/staff/christerjansson/	cgjansson@lbl.gov	510-486-7541	1 Cyclotron Rd., Berkeley, CA 94720. Mail stop 70A-3317
Los Alamos National Laboratory	John Gordon	Federally Funded Research and Development Center (FFRDC)	Other	Synthesis and characterization of inorganic and organometallic catalysts; bioorganic and biomimetic constructs of enzyme active sites; organic ligand synthesis and isotopically labeled compounds for spectroscopic and mechanistic analysis; computational transition state theory and reaction mechanism analysis; optimization of global rates for scale up	www.lanl.gov	jpgordon@lanl.gov	505-665-6962	Chemistry Division, MS J582, Los Alamos National Laboratory, Los Alamos, NM 87545
Lybradyn, Inc.	John Aikens	Business < 500 Employees	Bioenergy	Synthetic biology/genetic engineering Fermentation technology development Technology business strategy and development	www.lybradyn.com	jaikens@lybradyn.com	630-575-8313	125 Windsor Ste 126, Oak Brook, IL 60523

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Medical University of South Carolina	Harold May	University	Bioenergy	electromicrobiology electrosynthesis of fuels and chemicals from CO2 electrofermentation of fuels and chemicals from waste organics biological formation of carbon-carbon bonds bioreactor development microbiome development and analysis methanogenesis acetogenesis bioenergy	http://academicedepartments.musc.edu/immunology/Faculty/may.html	mayh@musc.edu	843-725-4865	331 Fort Johnson Road Charleston, SC 29412-9112
Menon International, Inc.	Kashinatham Alishala	Business < 500 Employees	Bioenergy	Menon has amassed a large library of microbes from a wide variety of environments spanning the globe. These strains enable new benefits to mankind and the environment. The isolated species show promise for cost-effective generation of Renewable Hydrocarbon Fuels. The microbes digest organic waste matter such as green waste, municipal solid waste and farm waste and produce lipids (oil) that can be upgraded into petroleum-compatible hydrocarbon fuels from gasoline to jet fuel to diesel. Other products of the same process also provide value, such that the overall operation can produce fuels at a price competitive with current petroleum fuel prices. Menon has not only isolated these species but also developed key system and process technologies to render the production cost-effective.	www.menon.us	kalisala@menon.us	858-675-9990	16550 W. Bernardo Dr, Bldg. 5, Suite: 525, San Diego, CA 92127
Microvi Biotech Inc.	Ameen Razavi	Business < 500 Employees	Other	Microvi is a privately-held company that designs and develops advanced synthetic biomaterials, or biocatalysts, based on our platform technology. We enable the scale-up and implementation of microbial and enzymatic processes that would otherwise be too expensive, slow, unreliable, or sensitive. Microvi's platform technology has been scaled-up to worldwide capacity and operates commercially for selected applications. We are currently developing biocatalysts for methane-to-liquids bioconversion based on 1) intensified performance, 2) stable and controlled cellular microenvironments, 3) resistance to automutation, 4) increased methane bioavailability, and 5) resistance to product toxicity. Microvi is seeking partners with large fermentation capacities, as well as groups with innovative microorganism or enzyme methods for methane-to-fuels bioconversion.	www.microvi.com	ameen@microvibiotech.com	510-344-0668	26229 Eden Landing Road, Hayward, CA 94545
Mississippi State University	Todd French	University	Bioenergy	We have expertise in gaseous hydrocarbon metabolism as well as lipid metabolism in oleaginous microorganisms. Our laboratories have the capability to carry out fermentations ranging from the bench to 1000 L capacities along with all the supporting analytical equipment. Being a comprehensive university we also have partners in genetics and logistics.	http://www.ser.c.msstate.edu/	french@che.msstate.edu	662-312-9822	P.O. Box 9595

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MIT: Professor Greg Stephanopoulos Metabolic Engineering and Bioinformatics Laboratory	Dr. Greg Stephanopoulos	University	Bioenergy	We specialize in the systematic application of metabolic engineering principles for biofuels and other small molecule biosynthesis within a variety of organisms, ranging from standard laboratory strains to novel production candidates. These tools include metabolic flux analysis, metabolic control analysis, and other bioinformatic techniques. Pathways with which we have particular expertise include: yeast fatty acid synthesis, bacterial Wood-Ljungdahl carbon fixation, isoprenoid (MEP) production, and others. We have also developed bioreactor operational strategies to enhance productivities, yields and titers in both aerobic and anaerobic systems. Our approach is driven by rigorous economic analysis and a data-driven understanding of the basic biology of the organisms with which we work. In previous ARPA-E and other research, we have demonstrated an ability to efficiently manage interdisciplinary teams spread between multiple academic and industrial partners.	http://bamel.scripts.mit.edu/gns/	gregstep@mit.edu	617-253-4583	Massachusetts Institute of Technology, Room 56-469C, 77 Massachusetts Ave, Cambridge MA 02139 USA
National Renewable Energy laboratory	Richard Bolin	Federally Funded Research and Development Center (FFRDC)	Bioenergy	Strain Development Biomass conversion to fuels and chemicals Techno-economic modeling LCA analyses Compositional Analysis Gas fermentation capabilities Integrated Biorefinery Facility Thermochemical Pilot Facility Catalyst testing and development Protein, metabolic engineering	www.nrel.gov	richard.bolin@nrel.gov	303-384-7716	15013 Denver West Parkway, Golden, CO 80401
Newlight Technologies, LLC	Mark Herrema	Business < 500 Employees	Other	Newlight operates large-scale technology converting methane and carbon dioxide (GHGs) into polyhydroxyalkanoate (PHA) polymers. The company has nearly a decade of experience in designing, building, and operating high efficiency bioreactors designed to convert GHGs into products using biologically-based substrates, with reactor design experience in sizes ranging from hundreds of gallons to tens of thousands of gallons. Newlight's reactor technology enables very high mass transfer, heat transfer, and material synthesis at low energy and capital cost. Newlight has engineered an extremely high yield biocatalyst to convert GHGs into PHA at low cost, and has been operating at large scale over multiple consecutive years. A revenue-generating company selling products made through the ultra high yield biocatalytic conversion of GHGs into plastic, Newlight's capabilities also include intellectual property expertise, with eight US and international patents and hundreds of pending patent claims.	http://www.newlight.com	bizdev@newlight.com	(888) 269-0489	2222 Michelson Drive, Irvine, CA 92626

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North Carolina State University	Robert M Kelly	University	Bioenergy	Microbial physiology and biomolecular engineering of extreme thermophiles for bioenergy applications	http://www.che.ncsu.edu/extramophiles/	rmkelly@ncsu.edu	919-515-6396	Department of Chemical and Biomolecular Engineering, North Carolina State University, Box 7905, Raleigh, NC 27695-7905
Nrgtek Inc.	Subra Iyer	Business < 500 Employees	Transportation	Use of chemical technologies to convert methane into a high calorific value liquid fuel, using non-Fischer/Tropsch processes, as well as coal liquifaction technologies.	www.nrgtekusa.com	siyer@nrgtekusa.com	714-283-1067	17120 Fremont Lane Yorba Linda CA 92886
PEM (Policy Economic Modeling)-software	Chung J Liew	Business < 500 Employees	Transportation	I am one of the two developers of the family of the MRVIO (Multi-Region Variable Input-Output) model with 10 computer programs. I am one of the few who initiated the Integrating model of Economics, Transportation, Energy Efficiency, Environmental pollution, and Community Development. Recently, I have developed the PP-DMRVIO (Pollution generation, Pollution elimination-Dynamic MRVIO) model on which I have a provisional patent. I would like to utilize the PP-DMRVIO model to measure the integrated impacts of government spending on Bio-Methanol. I would like to do data analysis with the PP-DMRVIO model and develop user-friendly Software (Spreadsheet Tools). The PP-DMRVIO model brings interesting and brightening results. Bio-Methanol is supposed to be costly. However, per gallon price of Bio-Methanol becomes as cheap as that of gasoline. I can program the PP-DMRVIO model in Fortran. I am a statistical data analyst with management science knowledge.	http://www.pem3.com	cjliew@verizon.net	(201)-224-0680	100 Winston Dr, #11MS, Cliffside Park, NJ 07010.
Penn State	Costas D. Maranas	University	Bioenergy	Computational protein and enzyme design. Reconstruction, analysis and redesign of metabolic networks.	http://maranas.che.psu.edu	costas@psu.edu	8148639958	112 Fenske Lab, University Park, PA 16802
Penn State University	Wayne Curtis	University	Bioenergy	Low-cost high efficiency mass transfer bioreactor design including fermentation of combustible / explosive gas mixtures. Metabolic engineering of hydrocarbon synthesis in non-traditional organisms (Current ARPA Electrofuels project). Experimental bioenergetics assessment (gas phase chemostats). Fermentation pilot plant up to 300L.	http://www.curtislab.org/	wrc2@psu.edu	814.360.3069	226 Fenske Lab, University Park, PA
Pennsylvania State University	Thomas K. Wood	University	Bioenergy	Protein and metabolic engineering utilizing monooxygenases to convert methane to methanol (first lab to successfully clone soluble methane monooxygenase into E. coli and first lab to control toluene monooxygenases for regiospecific green chemistry and remediation).	http://www.che.psu.edu/faculty/wood/group/index.html	tuw14@psu.edu	814-863-4811	161 Fenske Lab, University Park, PA 16802

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Protabit LLC	Barry Olafson	Business < 500 Employees	Bioenergy	Protabit LLC is focused on developing and applying the next generation of computational protein design (CPD) tools for engineering new and improved proteins. Protabit's core technology is Triad, a flexible, full-featured commercial-grade CPD platform that was developed in collaboration with Caltech. Triad complements laboratory engineering techniques by incorporating assay data directly into the design process and by generating libraries of protein sequences that can be tailored for a variety of high-throughput expression and screening methods. The Protabit team has extensive experience in protein engineering, combining the best available computational and laboratory protein engineering tools. We can optimize enzyme properties such as stability, solubility, pH profile, binding specificity/affinity, and more. We can also design de novo enzymes, and we can generate explicit or degenerate codon libraries to match the available laboratory screening capacity.	www.protabit.com	barry.olafson@protabit.com	626-844-7348	251 S. Lake Ave Suite 910, Pasadena, CA 91101
R3 Sciences	Richard Sapienza	Business < 500 Employees	Conventional Generation (Non-renewable)	R3 Sciences, LLC is using an innovative catalytic approach to transform natural gas into liquid methanol and other methanol-based products. The efficiency and effectiveness of our unique, patented and patent-pending approach allows for a low pressure, low temperature path to a liquid fuel and chemical intermediate product.	www.enersciences.com	rich@enersciences.com	337-291-4956	1424 S. Hugh Wallis Rd.; Lafayette, LA 70508
Rutgers University	Charles Dismukes	University	Bioenergy	We have developed a series of metal-oxo cluster catalysts that transfer oxygen atoms selectively to molecules including hydrocarbons (oxygenation) depending upon the molecule size and polarity (selectivity). Molecular oxygen is the source of oxygen atoms used for regeneration of these catalysts. These organometallic catalysts allow selectivity between hydrocarbons by steric control, while partially oxygenated products are rejected from further conversion by unfavorable polarity.	http://rutchem.rutgers.edu/dismukes_charles	dismukes@rci.rutgers.edu	732-445-1489	Department of Chemistry, Rutgers University, 610 Taylor Road, Piscataway, NJ 08854
Sandia National Laboratories	Blake A. Simmons	Federally Funded Research and Development Center (FFRDC)	Bioenergy	Synthetic biology of fungi, computational design and engineering of enzymes and metabolic pathways, bioinformatics, biomass pretreatment, microbial communities, design and synthesis of bio-inspired catalysts, design and synthesis of metal organic frameworks, advanced sensors and diagnostics, electrocatalysis, synthesis and characterization of nanoscale heterogeneous catalysts, design and synthesis of ionic liquids, high performance computing, systems analysis, systems engineering, techno-economic modeling, microfluidics, reactor design, thermochemistry, Combustion Research Facility, HiSeq gene sequencing, proteomics, mass spectrometry, NMR, and advanced imaging/spectroscopy (IR, Raman, fluorescence).	www.sandia.gov	basimmo@sandia.gov	925-294-2288	7011 East Avenue, MS 9291, Livermore, CA 94551

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SRI International	Barbara Heydorn	Non-Profit	None of the above	SRI International has expertise in bioinformatics (metabolic databases and modeling), biotechnology, catalysis, separations, fuel chemistry, life cycle analysis, methane detection, and other areas relevant to bioconversion of methane to liquid fuels. Our staff of 2,100 work in partnership with clients to invent, scale-up and commercialize promising technologies developed by SRI, brought to us by clients, or developed in partnership with clients. We routinely participate in or lead teams supported by government-funded research contracts. SRI's main laboratories are in Menlo Park, California.	www.sri.com	energy-center@sri.com	650 859 5717	333 Ravenswood Ave., Menlo Park, CA 94025
Star Bio Solutions LLC	Paul Kline	Business < 500 Employees	Bioenergy	Have produced and managed a Canola crushing and renewable fuel facility. producing over 4.5 Million gallons per year. Currently working with a government agency on an Anaerobic Digester closed loop power system. This system is designed to utilize methane gas to develop other energy sources, making the system over 85% conversion to sellable byproducts.	Info@gh-aerospace.com	pkline@gh-aerospace.com	480-280-7787	15035 North 74th street, Scottsdale, AZ 85260
TerraLeaf/Vice Chem	Stephanie Sheridan	Business < 500 Employees	Other	Our technology is modular, operates at standard temperatures and pressures, using salt water and natural gas as reactants. It scrubs natural gas to produce useful products, increasing the value of stranded gas from pipelines 10 fold, while avoiding flaring and other environmental damage. Our system may also utilize CO2 at the wellhead, without reconfiguration; thus, waste gas at the top of reservoirs can be profitably processed into a liquid on both onshore and offshore locations. The system cost effectively scales at 1 barrel a day or 500,000 + barrels a day, allowing exploration companies to utilize gas to liquids technology in the field. We liquefy hydrocarbon gases while also increasing their mass as well as the market value. Local gas to liquids may be tailored to local market conditions or global commodity prices for commodity chemicals. Our system may also produce ethylene and oleo chemicals, which allow transportation of otherwise unusable natural gas and carbon dioxide.	http://www.cenergytech.com/	stephaniemshe ridan@gmail.com	202-660-3306	1610 Corcoran St, NW

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The University of Michigan	Jeremy D. Semrau	University	Bioenergy	Professor Semrau has studied aerobic methanotrophs for 25 years. Past and current research topics include: general studies of methanotrophic metabolism; development of technologies for removal of low concentrations of methane by methanotrophic biofilters; isolation and characterization of novel methanotrophs, including facultative methanotrophs; detailed examination of the biochemistry, genetics, and regulation of multiple forms of the methane monooxygenase; genomics and transcriptomics of pure methanotrophic cultures; genetics and kinetics of metal binding by novel biogenic compounds produced by methanotrophs that are involved in regulation of expression of methane monooxygenases, and; metagenomics and metatranscriptomics of in situ methanotrophic communities.	http://www-personal.umich.edu/~jsemrau	jsemrau@umich.edu	734-764-6487	109 EWRE Bldg, 1351 Beal Avenue, Ann Arbor MI 48109-2125
UMED Holdings, Inc	Randy Moseley	Business < 500 Employees	Technologies that offer new control capabilities via advanced models, mechanisms, or actuators	UMED has a patent pending for portable natural gas to liquid (GTL). The GTL unit can produce 2,000 barrels of diesel/jet fuel per day.	umedholdings.com	rmosley@umedholdings.com	817-296-3877	6628 Bryant Irvin Rd., #250, Fort Worth, TX 76132
University of California at Davis	Justin B Siegel	University	Other	We utilize computational protein modeling tools and synthetic biology to engineer enzymes with novel functions. We have successfully used our methods to develop many enzymes with functions not observed in nature, but needed for various applications in modern society.	https://sites.google.com/site/ucdsiegellab/	jbsiegel@ucdavis.edu	5307529910	451 Health Sciences Dr.
University of Colorado, Renewable and Sustainable Energy Institute	Ryan T. Gill	University	Bioenergy	Genome engineering, Enzyme Engineering, Pathway engineering.	rasei.colorado.edu	rtg@colorado.edu	3034922627	UCB424, Univ. of Colorado.
University of Georgia	Michael W. Adams	University	Bioenergy	Microbial conversions at extreme temperatures using genetically-engineered thermophiles.	http://adams.bmb.uga.edu/	adams@bmb.uga.edu	706 542 2060	706 542 0229
University of Hawaii	Dr. Wei Wen Su	University	Bioenergy	protein and enzyme engineering; fusion proteins; transgenic plants; metabolic engineering; fermentation; synthetic biology; bioprocess engineering	http://www.ctahr.hawaii.edu/mbbe/Su.html	wsu@hawaii.edu	808-956-3531	Dept. of Molecular Biosciences & Bioengineering, University of Hawaii, Honolulu, HI 96822
University of Houston	Patrick Cirino	University	Bioenergy	Protein engineering; Synthetic biology; Directed evolution; High-throughput screening; Biocatalysis; Oxygenases; Cytochrome P450 engineering; Redox metabolism	www.chee.uh.edu/faculty/cirino	pccirino@uh.edu	713-743-4399	S222 Engineering Bldg 1, Houston TX 77204-4004

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University of Massachusetts	Derek Lovley	University	Bioenergy	Efficient conversion of C1 compounds to multi-carbon commodities via the Wood-Ljungdahl pathway in a robust and genetically tractable acetogen.	www.electrofuels.org and www.geobacter.org	dlovley@microbio.umass.edu	413-695-1690	Department of Microbiology, Amherst, MA 01003
University of Nebraska-Lincoln	Nicole Buan	University	Bioenergy	Dr. Nicole Buan is a microbial physiologist with over 13 years experience in microbial genetics and redox biochemistry, with special expertise of methanogenic pathways. Current projects in the Buan Lab include creating and characterizing mutant archaea strain(s) that produce methane at faster rates. The Buan lab has developed advanced tools for anaerobic bacteria and archaea strains including, but not limited to: genetic modification of methane-producing archaea; studying gene regulatory systems and networks; semi-throughput mutant screening, selection, and characterization. Additional expertise includes growing and isolating strictly anaerobic microbes, enzyme engineering, enzyme kinetics, semi-throughput experimental design, -omics data analysis.	http://liferaydemo.unl.edu/web/redoxbio/nicolebuanphd	nbuan@unl.edu	402-472-7413	Department of Biochemistry, 1901 Vine St, N222 Beadle Center, Lincoln NE 68588
University of Nevada Reno	Dev Chidambaram	University	Other	Expertise in bio and microbial electrochemistry and surface analysis - spectroscopy (Raman, FTIR, XPS, UV-Vis, SIMS, and synchrotron-based techniques); Anaerobic microbiology;	www.electrochemical.org	dcc@unr.edu	775-784-7066	1664 N Virginia St, Univ of Nevada Reno, MS0388, Reno, NV 89557-0388
University of North Carolina at Chapel Hill	Thomas J. Meyer	University	Other	Molecular electrocatalytic redox reactions to generate feedstocks for fuel-producing biological organisms	www.efrc.unc.edu	tjmeyer@unc.edu	9198438312	Department of Chemistry, CB# 3290, Murray Hall 2202F, UNC Chapel Hill, NC 27599
University of Southern California	Sri Narayan	University	Other	Electrochemical conversion of carbon dioxide to fuels, electrochemical oxidation of fuels, battery based storage, fuel cells, electrocatalysis	http://chem.usc.edu/faculty/Narayan.html	sri.narayan@usc.edu	626 233 4350	Univ of So, California, 837 Bloom Walk, LHI-101, Los Angeles, CA 90089
University of Washington	Marin G Kalyuzhnyaya	University	Bioenergy	Marina G. Kalyuzhnyaya, PhD, is a UW Research Associate Professor (Microbiology). She has 17 years of experience in biochemistry, physiology, genetics, system biology and metabolic engineering of methane metabolism.	http://depts.washington.edu/microobs/pMarinaKalyuzhnyaya.php	mkalyuzh@uw.edu	206-543-0355	UW, Box 355014, Seattle, WA 98052

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University of Minnesota	Bo Hu	University	Bioenergy	Dr. Bo Hu's research group at Department of Bioproducts and Biosystems Engineering, University of Minnesota, works on the bioprocessing engineering, specifically focusing on new strain screening, biomass utilization and fermentative conversion. He has led projects to study recent manure foaming issues in swine and dairy manure storage, projects on co-cultivation of microalgae and fungi, and projects to develop an anaerobic co-digestion system for electricity generation and a modified anaerobic digestion system for biohydrogen production. Dr. Hu's team at UMN has set up several standard procedures such as 16s rDNA based microbial analysis by using high-throughput pyrosequencing methods to study the microbial species in the waste treatment processes, ITS sequences to identify oleaginous fungal species, and several conversion platforms such as pelletized fungal fermentation, solid and hemi-SolidSF to accumulate oil from lignocellulosic materials.	http://www.bbe.umn.edu/People/Hu/	bhu@umn.edu	612-625-4215	1390 Eckles Ave, St Paul, MN, 55108
Virginia Tech	Y-H Percival Zhang	University	Bioenergy	Construct cell-free biosystems for implementing complicated biological reactions. Key achievements: (1) highest hydrogen yield production from sugars; (2) low-cost conversion of cellulose to starch; (3) developing the highest energy density sugar biobatteries. Key capabilities: Construct non-natural pathways; engineering redox proteins; construct synthetic metabolons featuring substrate channeling	http://www.sugarcar.com	ypzhang@vt.edu	5402317414	304 Seitz Hall, Blacksburg, VA
Washington State University TriCities	Dr. Birgitte Ahring	University	Bioenergy	The Bioproducts Sciences & Engineering Laboratory (BSEL) is a 60,000 square-foot research and development laboratory facility at Washington State University TriCities. The mission is to provide a vigorous research program supporting the biofuels and bio-products industry first and foremost in Washington State as well as creating the workforce of the future bio-economy through a directed teaching effort. The focus areas for the BSEL staff are drop-in hydrocarbon biofuels and high-value bio-products from biomass. Our research capabilities include: 1) advanced pretreatment of biomass; 2) thermochemical processes (pyrolysis, gasification and pretreatment, and catalysis); 3) chemical processes (extraction and separation); and 4) biochemical processes (enzyme hydrolysis, fungal and bacterial processing and fermentation). BSEL researchers participate in a number of large grants, including the National Advanced Biofuels Consortium, US DOE Targeted Programs, NARA, and the USDA AFR1-CAP Program.	http://www.tricity.wsu.edu/basel/index.html	bka@tricity.wsu.edu	509-372-7682	2710 Crimson Way, BSEL Bldg., Richland, WA 99354

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Washington University in St. Louis	Fuzhong Zhang	University	Bioenergy	Fuel synthesis. Constructing novel biosynthetic pathways for the production of advanced biofuels. Optimization of metabolic pathways using synthetic biology approaches. We have developed dynamic regulatory systems that have significantly improved biofuel titers and strain genetic stabilities.	http://zhang.eece.wustl.edu/research.html	fzhang@seas.wustl.edu	314-935-7671	Dept of Energy, Environmental, and Chemical Engineering, Washington University in St. Louis
Wyss Institute for Biologically Inspired Engineering	Pamela Silver, PhD	University	Other	Genetic engineering of diverse microbes, biofuel synthesis, metabolic flux analysis, and genetic circuit engineering. We have successfully engineered a methylotroph to synthesize C8 and C12 fatty acids, and performed pilot engineering of a methanotroph. We have other funded programs in biofuel synthesis that would be synergistic with this effort. One goal is to develop a genetic module for synthesis of non-toxic drop-in fuels that separate from water. We are looking to partner with experts in methanotroph culture, gas transfer, and/or scale-up, potentially as a sub-recipient.	http://silver.med.harvard.edu/	pamela_silver@hms.harvard.edu	617-432-6401	3 Blackfan Street, Boston MA 02115