



LEE ENTERPRISES CONSULTING, INC.  
*World's Premier Bioeconomy Consulting Group*

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## PRIMARY AREAS OF EXPERTISE AT LEE ENTERPRISES CONSULTING, INC.

Lee Enterprises Consulting is the world's premier bioeconomy consulting group, with over 100 highly qualified experts serving in these areas. For a full list of all expertise, visit our website.

### Feedstock



- Agricultural Products and Waste
- Algae
- Biogas
- Biomass
- Cellulosic
- CO<sub>2</sub>
- Construction Waste
- Energy Crops
- Feedstock Analysis
- Feedstock Hedging/Risk Management
- Fermentation Waste
- Food Waste
- Forest Products
- Glycerin

- Hemp
- Landfill Waste
- Lignin
- Methane
- Municipal Solid Waste (MSW)
- Palm Waste
- Plastics/Polymers
- Pulp & Paper
- Railroad Ties
- Recycled Plastics
- Rubber Crops
- Sludge
- Solid Recovered Fuels

## Biofuels



- Advanced Biofuels
- Aviation/Jet Fuels
- Biobutanol
- Biocoal
- Biodiesel
- Biogas
- Biomass Power
- Cellulosic Ethanol
- Combined Heat & Power (CHP)

- Ethanol
- Fuel Additives
- Isobutanol
- Landfill Gas
- Pyrolysis Oil
- Renewable Diesel
- Renewable Hydrogen
- Renewable Natural Gas (RNG)
- Syngas
- Wood Pellets

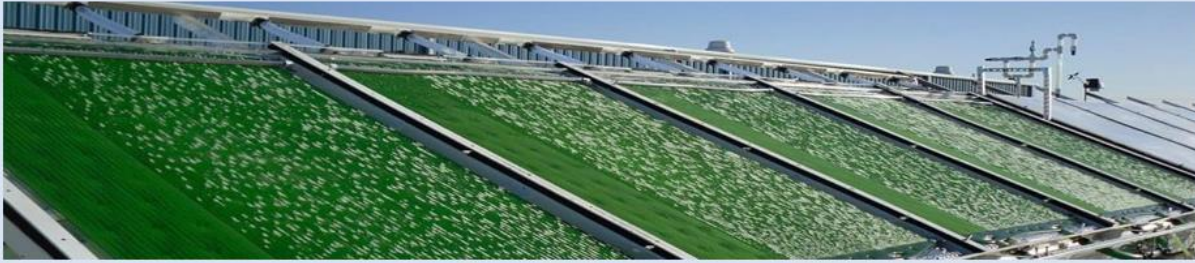
## Biomaterials & Biochemicals



- Activated Carbon
- Biochar
- Biomass to Chemicals
- Biopharmaceuticals
- Bioplastics/Polymers
- Biosynthetic Materials
- Cannabinoids
- Enzymes/Peptides
- Food Products
- Glycerin

- Industrial Chemicals
- Latex/Rubber
- Microbiome
- Nanocarbons
- Nutraceuticals
- Plastics/Plastic Waste
- Reclaimed Methanol
- Solvents
- Synthetic Biology Commercialization

## Technologies



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| <ul style="list-style-type: none"><li>• Activation – Thermal &amp; Chemical</li><li>• Agitation Systems</li><li>• Anaerobic Digestion</li><li>• Aquaculture</li><li>• Biomass Technologies</li><li>• Bioreactors</li><li>• Carbon Capture &amp; Storage</li><li>• Catalysis</li><li>• Direct Combustion</li><li>• Emerging Technologies</li><li>• Enzyme Technologies</li><li>• Fermentation</li><li>• Fischer-Tropsch</li><li>• Fluidization &amp; Process Design</li><li>• Gas to Liquids (GTL)</li></ul> | <ul style="list-style-type: none"><li>• Gasification</li><li>• Hydrothermal Carbonization</li><li>• Landfill &amp; Waste Management</li><li>• Municipal Solid Waste (MSW) Treatment</li><li>• Pelletization</li><li>• Plastics Recycling</li><li>• Pyrolysis/Carbonization</li><li>• Syngas Technology</li><li>• Technology Commercialization</li><li>• Technology Development</li><li>• Torrefaction</li><li>• Wastewater Treatment Technology</li><li>• Waste to Energy (WTE) Technology</li><li>• Waste to Gas (WTG) Technology</li><li>• Water Treatment Technology</li></ul> |
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## Legal & Regulatory



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| <ul style="list-style-type: none"><li>• Attestations</li><li>• Compliance Reporting</li><li>• Contract Review &amp; Negotiation</li><li>• Due Diligence</li><li>• Environmental Compliance</li><li>• EPA Compliance</li><li>• Expert Witness Services</li><li>• Grant Writing</li></ul> | <ul style="list-style-type: none"><li>• Insurance</li><li>• Intellectual Property (IP)</li><li>• Life Cycle Analysis</li><li>• Low Carbon Fuel Standard (LCFS)</li><li>• OSHA Compliance</li><li>• Permitting</li><li>• Taxes &amp; Tax Planning</li><li>• Wildlife Habitat Matters</li></ul> |
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## Technical & Engineering



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| <ul style="list-style-type: none"> <li>• Anaerobic Digestion &amp; Composting</li> <li>• Aseptic Design</li> <li>• Aspen Simulation</li> <li>• Biomass Supply Chain Analysis</li> <li>• BQ 9000 Preparation</li> <li>• Catalytic Valorization</li> <li>• Data Analysis (Lab and Process)</li> <li>• DOE Merit Reviews</li> <li>• Downstream Processes</li> <li>• Efficiency Analysis</li> <li>• Feedstock Evaluation</li> </ul> | <ul style="list-style-type: none"> <li>• Fermenter Design</li> <li>• Laboratory Testing</li> <li>• Operational Audits Pilot Plant Design</li> <li>• Plant Engineering, &amp; Design</li> <li>• Process Simulation</li> <li>• Product Formulation</li> <li>• Quality Assurance</li> <li>• Reactor Design</li> <li>• Recipe Management Assistance</li> <li>• Solid State Fermentation</li> <li>• Technology Assessment</li> </ul> |
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## Specialty Services



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| <ul style="list-style-type: none"> <li>• Alternative Proteins</li> <li>• Beverage Fermentation</li> <li>• Bio-based Product Development</li> <li>• Carbon Credits</li> <li>• Carbon Intensity (CI) Studies</li> <li>• Cell Based Meats</li> <li>• Executive Recruiting</li> <li>• Experimental Validations</li> <li>• Expert Witness Services</li> <li>• Formulation Chemistry</li> <li>• FSMA Compliance</li> <li>• Grant Writing</li> <li>• Insurance</li> <li>• Investor Services</li> <li>• IP Strategy</li> </ul> | <ul style="list-style-type: none"> <li>• Life Cycle Analysis (LCA)</li> <li>• Lipid Analysis</li> <li>• Litigation Support</li> <li>• Low Carbon Fuel Standard (LCFS)</li> <li>• Microbial Fermentation</li> <li>• Odor Control</li> <li>• Organic Synthesis</li> <li>• Pharma Process/GMP</li> <li>• Plant Operations</li> <li>• Plant Sales</li> <li>• Railcar Leasing</li> <li>• RIN Evaluation &amp; Marketing</li> <li>• Risk Analysis (FMEA, HAZOP)</li> <li>• Supply Chain Assessment</li> <li>• Techno-Economic Analysis (TEA)</li> </ul> |
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## Business & Financial



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| <ul style="list-style-type: none"><li>• Accounting &amp; Auditing</li><li>• Appraisals (Plants &amp; Equipment)</li><li>• Asset Management &amp; Disposal</li><li>• Biomass Marketing</li><li>• Budgeting (CAPEX &amp; OPEX)</li><li>• Business Plan Development &amp; Review</li><li>• Capital Structuring</li><li>• Competitor Analysis</li><li>• Due Diligence</li><li>• Feasibility Studies</li><li>• Feedstock Procurement &amp; Risk Management</li></ul> | <ul style="list-style-type: none"><li>• Financial Modeling</li><li>• Financial Packaging &amp; Assistance</li><li>• Loan Guarantee</li><li>• Market Assessment</li><li>• Offtake (Fuel Sales)</li><li>• Pro Forma Development &amp; Review</li><li>• Project Financing</li><li>• RFP Rating &amp; Ranking Services</li><li>• Strategic Planning</li><li>• Techno Economic Analysis</li><li>• Valuations (Operational &amp; Closed Facilities)</li></ul> |
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## Project Management



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| <ul style="list-style-type: none"><li>• Commercial Readiness Analysis</li><li>• Construction Oversight &amp; Management</li><li>• Electric Substation &amp; Interconnection</li><li>• Environmental</li><li>• EPC Contract Management</li><li>• Interim Executive Leadership</li><li>• Interim Plant Management</li><li>• Investor's Representative</li><li>• Logistics</li><li>• Manufacturing Selection &amp; Oversight</li><li>• Operational Planning</li></ul> | <ul style="list-style-type: none"><li>• Owner's Representative</li><li>• Permitting Strategy</li><li>• Pilot Plant Design &amp; Manufacture</li><li>• Plant Construction &amp; Retrofit</li><li>• Process Safety &amp; Management</li><li>• Project Planning</li><li>• Regulatory Review</li><li>• Risk Assessment &amp; Management</li><li>• Safety Training</li><li>• Site Selection</li><li>• Start Up Assistance</li></ul> |
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## Government Funding & Resources



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| <ul style="list-style-type: none"><li>• Analysis of Available Federal &amp; State Financial Support Resources</li><li>• Grants/Loan/ Loan Guarantee Application Writing</li><li>• Third Party Technical Engineering Analysis</li><li>• Technical Engineering Design and Specifications</li><li>• Feedstock Availability Analysis</li></ul> | <ul style="list-style-type: none"><li>• Off Take Product Marketing Analysis</li><li>• Due Diligence</li><li>• Feasibility Studies</li><li>• Business Plans</li><li>• Loan Guarantee Lender Interim/ Permanent Participation</li><li>• Environmental Assessment</li><li>• Application Packaging Assistance</li><li>• Appraisals</li></ul> |
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## Hemp/Cannabis



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| <ul style="list-style-type: none"><li>• Business Plan Development &amp; Evaluation</li><li>• Cannabis Business Development</li><li>• Cannabis Business Expansion</li><li>• Cannabis Business Financing</li><li>• Cannabis Industry Consulting</li><li>• Construction Planning &amp; Management</li><li>• Distillation Technology</li><li>• Due Diligence</li><li>• Extraction/Remediation Technology</li><li>• Facility Architecture &amp; Planning</li><li>• Facility Design</li><li>• Facility Licensing</li><li>• Financial Sourcing</li></ul> | <ul style="list-style-type: none"><li>• Infusion Product Development</li><li>• Marijuana Business Development</li><li>• Marijuana Business Financing</li><li>• Market Assessment</li><li>• Medical Cannabis Business Development</li><li>• Personnel Hiring &amp; Training</li><li>• Process Engineering</li><li>• Process Optimization/Start Up</li><li>• Product/Company Branding</li><li>• Pro Forma Development &amp; Evaluation</li><li>• Seed-to-sale System Implementation</li><li>• Standard Operating Procedures</li><li>• Supercritical CO2 Extraction</li></ul> |
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## Land & Natural Resources



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| <ul style="list-style-type: none"> <li>• Agricultural Economics</li> <li>• Agroforestry</li> <li>• Air Quality</li> <li>• Algal Ecosystems</li> <li>• Best Management Practices</li> <li>• Biochar</li> <li>• Carbon Credits/Markets</li> <li>• Certification (e.g., FSC/SFI)</li> <li>• Ecosystem Service Credits</li> <li>• Environmental Risk Modeling</li> <li>• Farm Bill Programs</li> <li>• Feedstock Management</li> <li>• Forestry Mgmt./Wood Products</li> <li>• Integrated Pest Management</li> </ul> | <ul style="list-style-type: none"> <li>• Invasive Species Mitigation</li> <li>• Landscape Design/Modeling</li> <li>• LCA/GREET</li> <li>• Native Ecosystem Sustainability</li> <li>• NEPA/ESA/Regulatory</li> <li>• Nutrient Management</li> <li>• Perennial Grass Mgt.</li> <li>• Plantation Management</li> <li>• Pollinator Conservation</li> <li>• Soil Health &amp; Conservation</li> <li>• Water Quality &amp; Conservation</li> <li>• Watershed Assessments/SWAT</li> <li>• Wildlife/Biodiversity</li> <li>• Working Lands Management</li> </ul> |
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## Food & Livestock



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| <ul style="list-style-type: none"> <li>• Animal Food &amp; Ingredients</li> <li>• Animal Nutrition</li> <li>• Biofuels &amp; Co-Products</li> <li>• Computer Modeling–Production Systems</li> <li>• Feed &amp; Ration Formulation</li> <li>• Food Production &amp; Processing</li> <li>• Food Safety &amp; Food Defense</li> <li>• Food Safety Modernization Act / FSMA</li> <li>• Global Food Safety Initiative (GFSI/SQF)</li> </ul> | <ul style="list-style-type: none"> <li>• HACCP &amp; cGMP's</li> <li>• Human Food &amp; Ingredients</li> <li>• Ingredient Evaluation</li> <li>• Livestock Production</li> <li>• Market Analysis &amp; Evaluation</li> <li>• Novel &amp; Specialty Ingredients</li> <li>• Preventive Controls Qualified Individual / PCQI</li> <li>• Quality Assurance / Quality</li> </ul> |
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## Lee Enterprises Consulting Engagement Approach

Lee Enterprises Consulting has over 150 subject matter experts. Most are PhDs, MBAs, scientists, engineers, financial experts, and attorneys, and many are former C-level executives with many years of experience at major companies. Our experts represent the top talent worldwide.

Our projects cover a broad range. Some require a few hours of one expert's time, while others involve multiple experts over a long period. Our expert's rates generally range from \$150 - \$350/hour depending on the expertise, the type of engagement, and project duration. We handle some projects on a flat fee basis, while others are done on an hourly, weekly, or monthly basis.

- Open Ended Engagements: Projects like serving as a representative for an owner or investor, or as an expert witness in bioeconomy litigation, are most often open ended with budgets difficult to set initially as services evolve with the progress of the engagement. For many of these, we work against a retainer with the client always directing our efforts.
- Weekly or Monthly Engagements: Some projects work well on a weekly or monthly retainer basis, with an agreed cap per period.
- Levels of Engagement: Engagements like assessing the feasibility of a potential project, generally fall into one of three categories:
  - High Level Reviews: Requiring high-level review of new technology potential or a new build, typically including an overview of regulatory and supply issues, and a preliminary economic study, normally range from \$5,000 - \$30,000.
  - Detailed Focus: Requiring more detail on the technical and financial aspects, with assessment of operational data, capital & operating costs, *pro forma* development, environmental issues, LCFS/RINS credits, potential partnering relationships, and occasionally site assessments, normally range from \$25,000 - \$75,000.
  - Full Commercial Projects: Encompassing site selection, supply chain assessment, feedstock handling, process design and layout, product purification and off-take, permitting, waste stream handling, site development, EPC engagement, etc. can run in the \$75,000 - \$200,000 range.
- Stage Gate Approach: We often conduct projects in stages. This allows clients to select specific tasks to be done at each stage, evaluate milestones, and to make decisions at each stage.

Our goal is to work with the client to establish the engagement that best meets their needs and budget. We understand that the key to successful projects begins with everyone having a clear understanding of the timing, the expertise needed, and the deliverables sought. Our benefit in large projects is our ability to provide interdisciplinary teams with a single point of contact. In smaller projects, our size enables us to find the right expert for any project. Call (1+ (501) 833-8511) or [email](#) for more information.

