The Expert Witness in Bioeconomy Litigation

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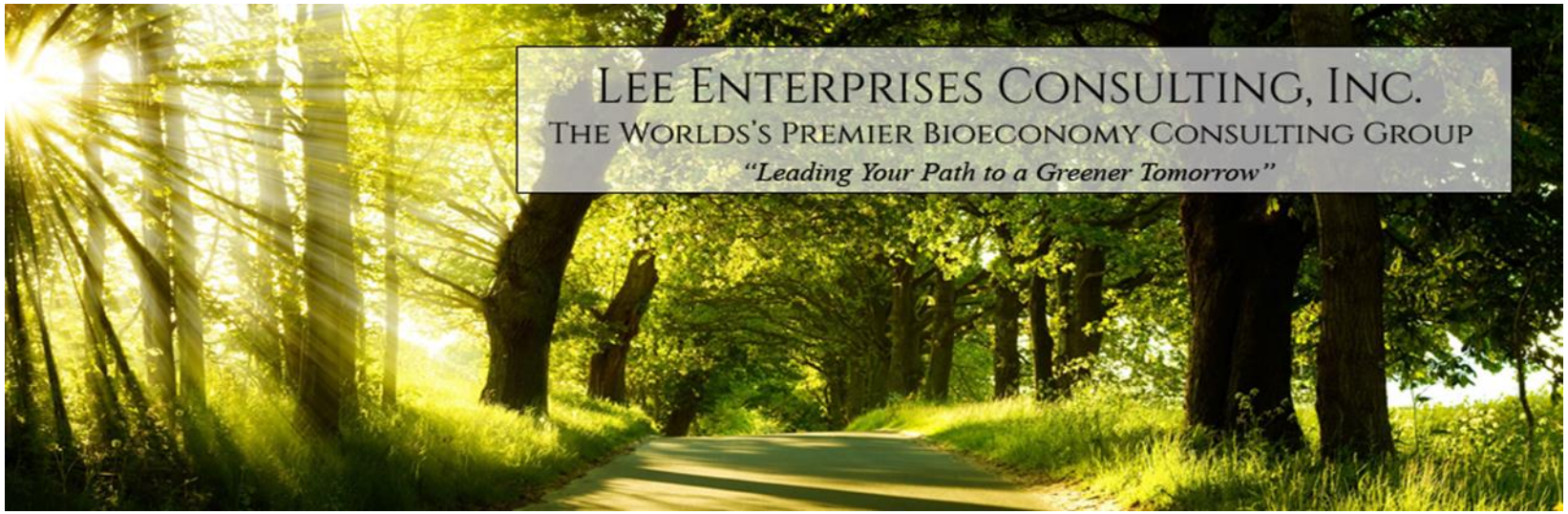

WHAT IS BIOECONOMY LITIGATION?

Any lawsuit involving the production of renewable biological resources, and/or the conversion of these resources and waste streams into value added products, such as food, feed, fuel, bio-based products and bioenergy. These include:

- Biofuels
- Biochemicals & Other Biomaterials
- Biotechnologies
- Bio-Feedstocks
- Other Specialty Areas

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BIOFUELS

The term “biofuel” , or “renewable biofuel” refers to a fuel produced by some biological process such as agriculture or anaerobic digestion, as opposed to fossil fuels (coal and petroleum) which are produced through a geological process which come from prehistoric biological matter. These include:

- Aviation Fuels
- Advanced Biofuels
- Biobutanol
- Biochar/Biocoal
- Biodiesel
- Biogas
- Biomass Power
- Dimethyl Ether
- Ethanol
- Producer Gas/Syngas
- Pyrolysis Oil
- Renewable Diesel
- Renewable Natural Gas (RNG)
- Wood Pellets

BIOCHEMICALS & BIOMATERIALS

Biochemicals are any materials that are derived from renewable biological resources such as plants or plant or animal wastes. Familiar examples include ethanol produced by fermentation, and acetic acid (vinegar), but also include a wide range of specialty chemicals such as pharmaceuticals and nutraceuticals. Many of the biochemicals produced in the world today are used as intermediates in the preparation of more complex, higher value materials. These include:

- Animal Health
- Aquaculture Health
- Biochemicals
- Bio-fertilizers
- Bio-fibers
- Biomass to Sugars
- Bioplastics/Polymers
- Enzymes
- Food Ingredients
- Industrial chemicals
- Latex
- Lubricants
- Nanocarbon/Celluose
- Neutraceuticals
- Organometallics
- Renewable Chemicals
- Rubber
- Solvents

BIOTECHNOLOGIES

Bioprocess technology typically uses microbes such as yeast, bacteria, or fungi to produce a product by fermentation and/or enzymes to transform or modify a chemical or material to produce a final product. Bioprocess technology is also commonly integrated with conventional physical and chemical methods to achieve a total process. A fuel ethanol plant is a common and relatively simple example of a bioprocess. These include:

- Anaerobic Digestion
- Bio-Oil Extraction
- Bioreactors
- Carbon Capture & Storage
- Catalysis
- Cellulosic Ethanol
- Cleantech Matters
- Direct Combustion
- Due Diligence for Biotechnology
- Fermentation
- Fischer-Tropsch
- Gasification
- Genetic Engineering
- Hydrothermal
- Nanotechnology
- Organosynthesis
- Power Generation
- Pyrolysis/Carbonization
- Synthetic Biology
- Thermochemical Conversion
- Torrefaction
- Water Treatment

BIO FEEDSTOCKS

Bio feedstocks include any material of a recent biological origin that is a candidate to be converted or upgraded to useful products like fuels or chemicals. The corn that is used to produce ethanol by fermentation is a very familiar and widely used feedstock. Waste materials can also be used as feedstocks.

- Agriculture
- Algae
- Biogas
- CO2
- Construction Waste
- Cooking Oils
- Energy Crops
- Feedstock Analysis
- Fermentation Waste
- Forest Products
- Glycerin
- Hemp/Cannabis
- Lignin
- Municipal Solid Waste (MSW)
- Palm Waste
- Pyrolysis/Carbonization
- Railroad Ties
- Sludge
- Solid Recovered Fuels
- Wood Waste

OTHER SPECIALTY AREAS

There are many specialty services within the bioeconomy in which Lee Enterprise excels. Our consultants have broad experience and advanced degrees in numerous specialties. These include:

- Bio-based Product Development
- Carbon Credit Related Matters
- Due Diligence
- Equipment Sales
- Experimental Validations
- Expert Witness
- Feasibility Studies
- Grant Writing
- Insurance
- Investor Services
- IP Strategy
- Life Cycle Analysis (LCA)
- Patent Evaluation
- Plant Operations
- Plant Sales
- RIN Related Matters
- Risk Analysis (FMEA)
- Techno-Economic Analysis

WHAT MAKES A GOOD EXPERT WITNESS?

Competence: Does expert possess the academic credentials, experience in the field, including work history, and sufficient knowledge and experience in the subject matter?

Familiarity With Legal Proceedings: Is the expert experienced in the courtroom and in depositions, knowledgeable as to the general rules of evidence and procedure? Does the expert have a clear understanding of their role?

Ability to Articulate: Is the expert well-spoken and even tempered? Do they possess the ability to make specialized matters understandable to lay persons?

Appearance: Does the expert present themselves in a professional manner?

Conflicts of Interest: Is the expert free of any conflicts of interest?

DOES EXPERT QUALIFY UNDER *DAUBERT* OR *FRYE*?

To testify as an "expert" witness, the professional must first be qualified as such. Depending on whether a matter is in federal court or a state court, the standards may vary. Standards are largely based two cases.

Daubert v. Merrell Dow Pharmaceuticals Inc., 509 U.S. 579 (1993) – Newer standard currently used in federal courts and most state courts.

Frye v. United States, 293 F. 1013 (D.C. Cir. 1923) – Original standard which is still used by some state courts.

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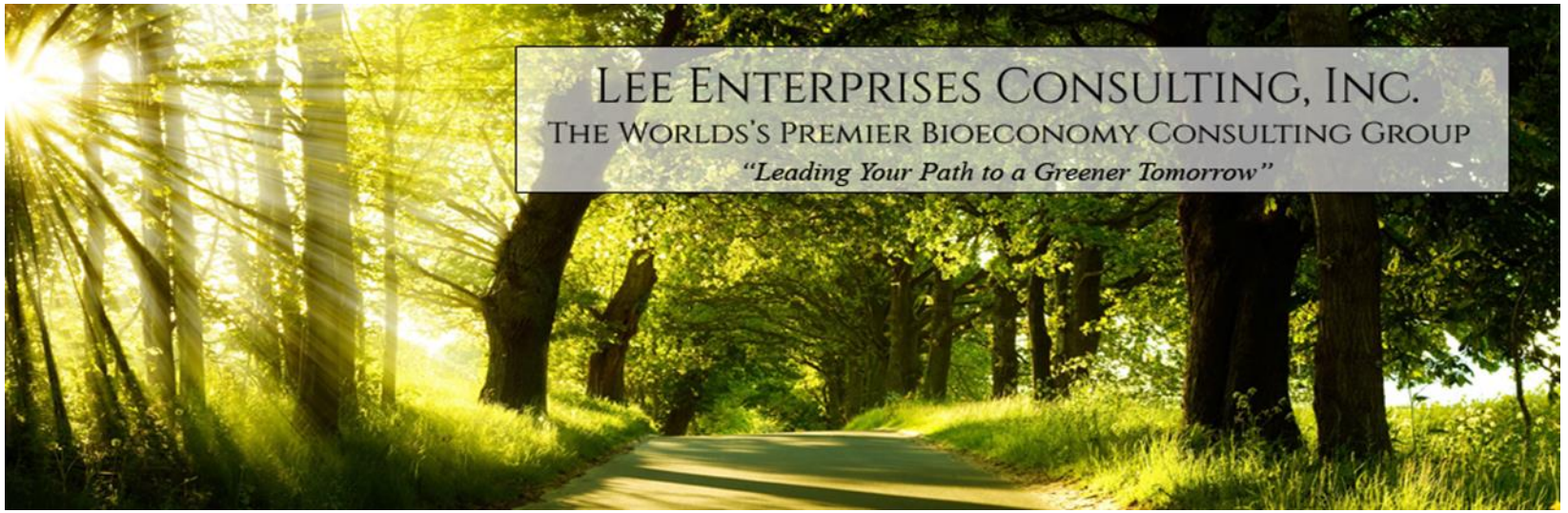
All Lee Enterprise expert witness consultants have been trained for participation in the key aspects of being an expert witness before they are recommended to clients.

FINDING GOOD EXPERT WITNESSES IN BIOECONOMY LITIGATION

Unlike more common types of expert witnesses, those in the bioeconomy are highly specialized and may be more difficult to identify. Start by looking for working specialists in the field.

- Biologists
- Chemists
- Chemical Engineers
- Environmental Engineers
- Analytical Chemists
- Biochemists
- Process specialists
- Refining experts
- Fermentation experts



ABOUT LEE ENTERPRISES CONSULTING

TEAM: World's largest bio consulting group with 100+ subject matter experts.

PROJECTS: Our members have completed thousands of projects in biofuels, biomaterials, bio-technologies, feedstocks and bio technologies.

COST: Cost-effective, interdisciplinary teams with single point of contact.

CLIENTS: Include biofuels companies, chemical companies, investors, banks, entrepreneurs, plant owners, law firms, technology providers, energy companies, and engineering firms.

For Further Information

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