Biomass and Biofuels Energy Strategy Training Course: Feedstock, Conversion and Sustainability

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Dubai - Marriott Hotel Al Jaddaf, Dubai

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Programme Summary

Biomass and biofuels energy strategy is the subject of this one-week training course for energy strategists, project developers and fuel and utility managers, taught at strategic level and ending in a biomass and biofuels pathway plan. Bio-based fuels can displace fossil supply, yet feedstock, cost and emissions claims differ between options. The programme moves from feedstock supply to conversion routes, carbon accounting, project economics and a final application. Mars Training Centre UK delivers this programme on biomass and biofuels energy strategy to mixed-organisation cohorts.

The Business Case

Leaders who can compare feedstocks, conversion routes and emissions on a like-for-like basis avoid committing capital to pathways that cannot be supplied or defended. Without that discipline, projects are screened on enthusiasm and a single supplier quote, and emissions claims fail when they are first audited. The programme works on the measures below and tests them on cases drawn from three sectors.

- Fuel Supply Security: Improves when feedstock sources and logistics are tested before commitment.
- Cost per Unit of Energy: Becomes clearer when conversion, transport and storage costs are modelled together.
- Emissions Reduction Claims: Gain credibility when they rest on life cycle accounting.

Principles and Evidence Base

- Life cycle assessment: A method for accounting for greenhouse gas emissions from feedstock to end use, applied in Session 3 to compare the carbon performance of pathways.
- Feedstock supply chain logistics: The planning of collection, transport, storage and quality, applied in Session 1 to test whether supply can be sustained.
- Project economics: The comparison of cost per unit of energy with price and incentives, applied in Sessions 4 and 5 to judge whether a pathway is viable.

Intended Participants

- Energy strategists who set the fuel mix for a utility or industrial group.
- Project developers who screen projects before design begins.
- Fuel and procurement managers who buy or specify bio-based fuels.
- Sustainability leads who report and defend fuel emissions.

Typical settings include power generation, cement and heavy industry, aviation and road fuels, and agricultural processing.

Learning Outcomes

1. Participants will be able to evaluate feedstock options by availability, quality and supply risk.
2. Participants will be able to compare thermochemical and biochemical conversion routes for a given fuel need.
3. Participants will be able to construct a life cycle emissions comparison of two pathways.
4. Participants will be able to appraise the economics of a biomass or biofuel project.
5. Participants will be able to prioritise pathways by supply security, cost and emissions.
6. Participants will be able to justify a pathway plan to an investment committee.

Programme Structure

Day 1: Biomass and Biofuels Energy Strategy and Feedstock Supply

Which feedstocks can be supplied in the quantity and quality a pathway needs?

- Feedstock Type and Residue Inventory
- Collection and Transport Logistics Map
- Moisture and Quality Specification Sheet
- Seasonal Supply and Storage Plan
- Competing Use Screening Grid

Day 2: Conversion Routes and Fuel Products

Which conversion route turns a given feedstock into the fuel the buyer needs?

- Thermochemical Route Comparison
- Biochemical Route Comparison
- Solid, Liquid and Gaseous Fuel Product Table
- Fuel Quality and Compatibility Check
- Scale and Technology Readiness Matrix

Day 3: Sustainability and Carbon Accounting

How are the emissions of a bio-based fuel measured and defended?

- Life Cycle Boundary Diagram
- Feedstock Emissions Source Register
- Land Use and Residue Impact Review
- Sustainability Scheme Criteria Overview
- Pathway Emissions Comparison Sheet

Day 4: Project Economics and Risk

What does a unit of bio-based energy cost, and which risks decide the result?

- Cost per Unit of Energy Model
- Feedstock Price Sensitivity Table
- Incentive and Price Scenario Grid
- Offtake and Supply Contract Risk Register
- Investment Screening Scorecard

Day 5: Biomass and Biofuels Pathway Plan for One Organisation

Do the findings join into a plan that an investment committee can approve?

- Applying the Session 1 Supply Map
- Testing the Session 2 Route Comparison
- Checking the Session 3 Emissions Sheet
- Reviewing the Session 4 Investment Scorecard
- Completing the Biomass and Biofuels Pathway Plan

Methodology

The programme is a case analysis built on prepared data from a power producer, a heavy industry site and a transport fuel supplier. Participants screen feedstocks, compare routes, build an emissions comparison and test project economics, then defend their pathway plan in front of peers acting as an investment committee.

- Suggested activity: Screening three residue feedstocks for a power plant.
- Suggested activity: Comparing the emissions of two fuel pathways on a shared boundary.
- Suggested activity: Testing a project against a feedstock price rise.

Capstone Output

Each participant completes a biomass and biofuels pathway plan for one organisation. It holds a feedstock supply map, a route comparison, an emissions sheet, an economic screen and a ranked list of pathways. At work it goes to the investment committee and sets the criteria for judging later proposals.

Frequently Asked Questions

Is biomass and biofuels energy strategy training suitable for leaders without a chemical engineering background?

Yes. Biomass and biofuels energy strategy is taught at strategic level through prepared cases and templates. You need responsibility for fuel choices, projects or reporting, but no process engineering training.

Which methods does biomass and biofuels energy strategy rest on in this training?

Biomass and biofuels energy strategy here rests on life cycle assessment for emissions, supply chain logistics for feedstock and project economics for viability.

How is the plan from biomass and biofuels energy strategy training used at work?

You take the pathway plan to your investment committee, use its criteria to screen proposals and keep its emissions sheet as the basis for reporting.

How does biomass and biofuels energy strategy differ from a programme on solar and wind power?

Biomass and biofuels energy strategy centres on feedstock supply, conversion and fuel products, while a programme on solar and wind power centres on variable electricity generation and grid integration.