For one of my final year modules, Advanced Topics

in Mechanical Engineering, we were required to

study 3 subjects of our choosing. I chose

Probabilistic Design, Generative Design and Life

Cycle Assessments. We are solely assessed in one

of these topics and I was assigned the task of

assessing the feasibility of Sustainable Aviation

Fuels (SAFs) to meet the UK's aviation fuel demand.

My report involved a detailed analysis of different

feedstocks and their processing pathways to assess

their viability in reducing greenhouse gas emissions

and land use requirements. The findings highlighted

the potential of secondary (waste biomass) sources

over primary (crop-based) sources due to their lower

emissions and land use impact. I consulted a wide

range of academic, statistical, and governmental

sources to model the future fuel requirements and

land needed to sustain UK aviation solely on SAFs.

The report's conclusions emphasized the dual

approach of combining low-GHG-emitting secondary

sources with primary sources optimized for lower

land use to achieve sustainable production.

Skills used:

Data Analysis

Database Generation

Regression Modelling

Matlab Modelling

Academic Research

Critical Research Analysis