# Location, Location, Location

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## INTRODUCTION

In transitioning to low-carbon energy systems, to what extent has strategic consideration been given to the spatial planning of infrastructure, what is built, **where**, and why?

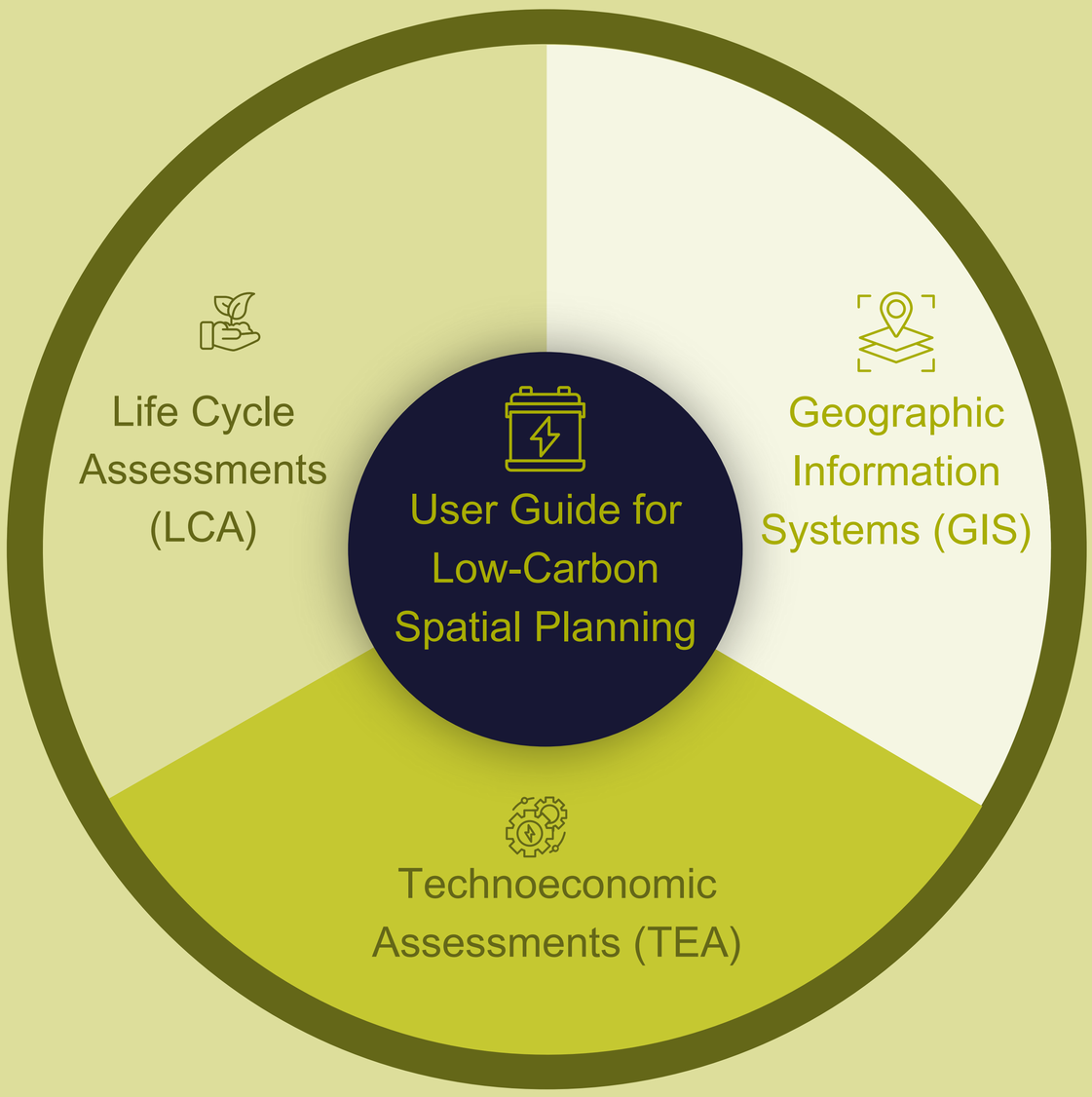
## PROJECT AIM

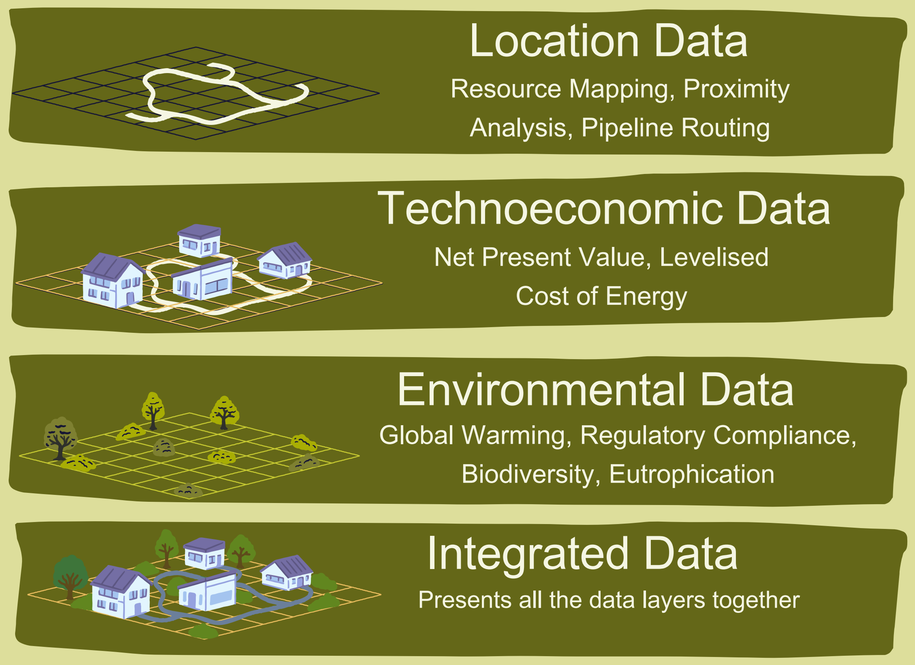
Develop a user guide for the spatial planning and investment of low-carbon fuel infrastructure.

## PROJECT OBJECTIVES

- To conduct spatial mapping of fuel infrastructure.
- To develop a geospatial decision-making framework for optimal site selection.
- To perform an economic analysis of low-carbon fuel infrastructure investment.
- To assess the feasibility and systemic integration of a hydrogen-based energy economy.

## RESEARCH APPROACH




## INITIAL CASE STUDY


**Figure 1.** A diagram illustrating two distinct scenarios, enabling a comparative analysis of their environmental impacts per kilogram of hydrogen produced, and facilitating the calculation of the levelised cost of hydrogen (LCOH) for each technology by incorporating both capital (CAPEX) and operational (OPEX) expenditures. This highlights the environmental and economic implications of strategic infrastructure placement.

**Scenario 1:** Aberdeen Renewables → Grid/HVDC Transmission → Electrolyser at Teesside → H2 Use at Teesside
**Scenario 2:** Aberdeen Renewables → Electrolyser at Aberdeen → Pipeline H2 Transport → H2 Use at Teesside

## INTENDED OUTPUTS AND IMPACTS

**Output**: Evidence-based decision-making for optimal site selection that satisfies spatial planning requirements for infrastructure development.

**Impact**: Lowering barriers to low-carbon fuel adoption, attracting investments, propelling industrial decarbonisation, creating an efficient integrated energy system.

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