

Project Cost of Carbon Dioxide Storage in Canada

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Description of project:

This research project will focus on the cost structure of a carbon capture (CO₂) storage project in Canada's offshore (e.g. a project located off the coast of Newfoundland and Labrador from 12mn to 200 nm from shore), examining the various types of financial requirements involved in developing and maintaining the project. Carbon capture and storage (CCS) is essential to mitigating climate change, but its high initial and ongoing costs have been a significant barrier to large scale implementation. This research will evaluate the direct and indirect costs associated with CO₂ storage, identify cost drivers, and assess the economic feasibility of these projects. Additionally, the project will consider how these might evolve as the technology matures and economies of scale are realized. The research project should use the Northern Lights Project (Longship) as an example of the costs associated with a new storage project ([Socio-Economic Analysis - Longship](#)).

Economic Analysis

The student will analyze the different categories of costs involved in CO₂ storage projects, including initial capital costs, operational costs, monitoring and long-term liabilities. Additionally, the student will examine the cost drivers and the primary factors that influence the cost of a CO₂ storage project, including technological innovation, regulatory frameworks, market conditions and location-specific challenges (specific to the offshore). Finally, the student will explore how the costs of CO₂ storage interact with funding mechanisms such as carbon pricing, subsidies and private investments, and determine the financial viability of large-scale deployment.

Research Question:

1. What are the project costs of a singular carbon dioxide storage project in Canada's offshore?
2. What are the potential benefits in carbon storage for such a project?

Tasks and deliverables:

1. Conduct a cost breakdown analysis including both capital expenditures (capex) and operational expenditure (OpEx).
 - a. Including, but not limited to, costs associated with building the infrastructure, pipelines and storage sites. Analyze the cost of drilling, monitoring and developing the reservoir.
2. Conduct a literature review of similar projects around the world.
3. Draft a report for submission to the Offshore Management Division.