

Economic sensitivities

Economic input overview

An economic model has been developed to assess economic sensitivities and their influence on a project's NPV. This model is based on a hypothetical carbon capture plant in Alberta. The following economic inputs were used:

1. **Capital and operating costs:** Carbon capture projects are expensive to build and operate (sometimes upwards of billions of dollars). If capital and/or operating costs change (i.e., go up or down), this can significantly change a project's profitability.
2. **Fuel and power pricing:** CCUS is energy-intensive, meaning it requires a lot of fuel (i.e., natural gas) and/or power (i.e., electricity) to operate, and these prices are not static. Natural gas prices are influenced by global energy markets, pipeline constraints or supply issues, and seasonal demands. Power prices are influenced by market demands, carbon pricing or emissions regulations, and weather impacts. These fluctuations in fuel and power pricing can have a significant impact on operating costs and revenue.
3. **Carbon pricing:** To encourage companies to reduce emissions, carbon pricing puts a cost on CO₂ emissions. In Alberta, large emitters are subject to emissions reductions targets under the Technology Innovation and Emissions Reduction Regulation (TIER). For emissions above this target, facilities are required to pay into the TIER fund at a fixed carbon tax price or submit carbon credits. Carbon credits can be generated by reducing facility emissions below the target or by conducting approved emission reduction offset projects, including CCUS. By reducing emissions with CCUS, emitters can avoid paying carbon taxes (set at a fixed value under TIER) and earn revenue through the sale carbon credits at market prices. This model evaluates the impact of fluctuating carbon taxes and carbon credit prices on project viability.
4. **Government Incentives:** The governments of Canada and Alberta have introduced financial incentives to encourage the development of CCUS projects. The federal CCUS ITC will refund up to 50% of a point source capture project's eligible capital costs. ACCIP is tied to the CCUS ITC, and will repay up to 12% of eligible capital costs (visit [Canadian CCUS Incentives Tool](#) for details). As government funding has a big impact to the profitability of a CCUS project, any changes to government policies and priorities introduces uncertainty into the economics of future projects.

