

US EPA ARCHIVE DOCUMENT

From: [Andrew Chartrand](#)
To: [Wilson, Aimee](#)
Cc: [David.Ayers@cheniere.com](#)
Subject: RE: CCS costs for CCL and Turbine BACT
Date: Wednesday, June 05, 2013 4:57:21 PM

Aimee,

Below is our response to your CCS question for the Corpus Christi Liquefaction Terminal:

Comment: Need a more detailed analysis on the costs and environmental impacts of carbon capture and sequestration (CCS). The cost analysis has to be site specific. We also need data to show how the addition of CCS would affect the capital cost of the proposed project. This can be done by either providing the estimated cost of the current project without CCS, or giving a percent increase in the capital cost of the project if CCS were added (e.g. CCS would increase the capital cost of the project by more than 50%).

Response: *The cost analysis provided in Appendix D of the original application is based on cost factors derived from several sources (see footnotes), including the Report of the Interagency Task Force on Carbon Capture and Storage (August 2010). The emissions factors used in the analysis are site specific, and the premised CO₂ pipeline distances are site specific. The minimum estimated capital costs for carbon capture from the turbines and thermal oxidizers are estimated to be \$263 and \$107 million, respectively. (In reality the capture costs from the turbines likely would be significantly higher since they sit some 60 feet off the ground on a massive platform instead of near ground level as with a conventional power plant, which is the elevation premise underlying the applied cost factors.) The capital cost of the pipeline is estimated to be \$177 million. Thus, the capital costs to capture the primary CO₂ emissions at the CCL site and deliver them 160 miles to Denbury Resources' West Hastings oilfield for underground sequestration through enhanced oil recovery would be \$547 million. (Please note that CCL has had no commercial discussion with Denbury regarding this option and does not have a reasonable expectation that such a solution would be commercially and technically feasible.) The estimated capital cost of the CCL facility without these CCS investments would be around \$9,193 million, so the CCS expenditures would represent an increase of around 6% in CCL's capital costs. As detailed in Appendix D, CCL's annual operations and maintenance expenditures for carbon capture, transport and storage would be at least \$137 million, which would represent a very significant increase in its overall O&M expenditures.*

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From: Wilson, Aimee [mailto:Wilson.Aimee@epa.gov]
Sent: Thursday, May 02, 2013 9:54 AM
To: Andrew Chartrand
Subject: CCS costs for CCL and Turbine BACT

Andrew,

I'm also going to need a more detailed analysis on the costs and environmental impacts of CCS. We recently received comments from the Sierra Club on the La Paloma GHG PSD Permit. They primarily

commented on the BACT analysis for turbine selection and CCS. In light of those comments we need to ensure we have enough information to defend eliminating CCS as BACT. The cost analysis has to be site specific. We also need data to show how the addition of CCS would affect the capital cost of the proposed project. This can be done by either providing the estimated cost of the current project without CCS, or giving a percent increase in the capital cost of the project if CCS were added (e.g. CCS would increase the capital cost of the project by more than 50%).

The Sierra Club Comments can be found at the following link.

http://www.epa.gov/earth1r6/6pd/air/pd-r/ghg/la_paloma_sierra_comments.pdf

Thanks,

Aimee

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