GLOBAL CCS INSTITUTE

Ms Abigail Groves
Inquiry Manager
Public Accounts Committee
NSW Legislative Assembly
Parliament House
Macquarie Street
Sydney NSW 2000

File Ref: LAC12/269

18 June 2012

Dear Ms Groves

Thank-you for the opportunity to answer the question on notice to the Public Accounts Committee "Inquiry into the economics of generation" following my testimony on May 11, 2012.

In discussing the geology of storage of CO2 [p.53 of the transcript], Mr Bassett asked "what is it costing to store, say a tonne of carbon? Do we have any benchmarks?"

The geological properties of the target storage site determine the cost of storage. The primary determinants influencing the rate of injection, and hence the cost, include the permeability and porosity of the storage site as well as the volume of storage available.

These costs are independent of the capture or transport costs as all necessary processing to meet CO2 purity and other standards will have occurred earlier in the CCS production chain.

There are currently 8 operating commercial CCS projects located around the world. These projects are storing CO2 captured from relatively low cost sources such as natural gas processing, fertilizer production or synthetic fuel production. These industries are considered "low –cost" as CO2 separation is part of an established production process. The additional costs to store the CO2 in deep saline aquifers or for use in enhanced oil recovery include compressing the CO2, transport and storage.

For the operating commercial projects, these costs are all commercially sensitive and are not in the public domain.

There are, however, a number of studies examining capture, transport and storage costs for a range of industries produced by credible agencies including the United States Department of Energy's National Energy Technology Laboratory, the International Energy Agency and the Global CCS Institute. These bodies produce peer reviewed cost benchmarks that are widely cited by industry and governments.

The most recent studies by these agencies were produced in 2011. The estimated costs of on-shore storage in saline aquifers are presented in Table 1.

Table 1 Summary of recently completed CCS cost studies

	Global CCS Institute	National Energy Technology Laboratory	International Energy Agency
US$/t CO_2	6	3.2-5.6	<10

Source: Global CCS Institute 2011, *Economic assessment of CCS technologies: 2011 update;* National Energy Technology Laboratory 2011, *Cost and performance baseline for fossil energy power plants study, Volume 1;* International Energy Agency 2010, *Projected costs of generating electricity*

In 2011, a European focused study was produced by the European Technology Platform for Zero Emission Fossil Fuel Power Plants (known as ZEP). ZEP is an advisor to the European Union on the research, demonstration and deployment of CCS. This study examined the likely post 2020 storage costs in a range of possible formations including both on- and off-shore saline aquifers and depleted oil and gas reservoirs.

For on-shore storage in a saline aquifer, ZEP estimated the costs to be around €5/t CO2. Across the diverse range of storage options considered, storage cost estimates ranged from €3-14 t/CO2.

I trust you will this information of use to your Inquiry.

Yours sincerely,

Barry Jones
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Global CCS Institute