

McCULLOUGH RESEARCH

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PRINCIPAL

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To: McCullough Research Clients
From: Robert McCullough
Subject: Site C Inquiry Situation Report

British Columbia Hydro's proposed Site C dam is now in its final week of regulatory review. The vast majority of materials filed have supported termination of the project in favor of solutions that are less expensive, more deployable in response to actual requirements, and less environmentally destructive. The basic economics indicate savings of Can\$2.6 to Can\$4.2 billion if the project is terminated:

Comparison of Alternatives:		Commission Scenarios		
		Low LF	Medium LF	High LF
	Site C			
Original Cost	\$ 8,775			
Plus, Cost Overrun	\$ 610			
Minus, Sunk Costs	\$ (2,100)			
Cost of Continuation	\$ 7,285	\$ 1,851	\$ 2,889	\$ 3,441
Termination Cost		\$ 1,200	\$ 1,200	\$ 1,200
Actual Cost	\$ 7,285	\$ 3,051	\$ 4,089	\$ 4,641
Termination Advantage		\$ 4,234	\$ 3,196	\$ 2,644

This is close to a Can\$1,000 savings for every adult in British Columbia. However, the benefits will not arrive without opposition.

Replacing a 1,100 MW hydroelectric project with wind, solar, or geothermal would be difficult for jurisdictions without an extensive ability to store and shape intermittent resources. Luckily, a vast amount of storage will be available in the next seven years as the Non-Treaty Storage Agreement becomes available. This provides 2.5 million-acre feet of storage incremental to British Columbia Hydro's current capability. The storage has been rented to the Bonneville Power Administration for the past fifty years.

Site C Inquiry Situation Report

October 23, 2017

Page 2

The challenge goes beyond energy planning; it is the cognitive bias through which human perception affects policy. The most recent recipient of the Nobel Prize in Economics, Richard Thaler, has described this as the Sunk Cost Fallacy:

This fallacy, which is related to status quo bias, can also be viewed as bias resulting from an ongoing commitment. For example, individuals sometimes order too much food and then over-eat ‘just to get their money’s worth’. Similarly, a person may have a \$20 ticket to a concert and then drive for hours through a blizzard, just because s/he feels that s/he has to attend due to having made the initial investment. If the costs outweigh the benefits, the extra costs incurred (inconvenience, time or even money) are held in a different mental account than the one associated with the ticket transaction.¹

The technological revolution in renewable energy generation was foreseen by very few when Site C was first planned thirty years ago.

British Columbia Hydro’s arguments in favor of the more expensive option of completing Site C include arguments that wind, solar, and geothermal projects will not work north of the U.S. border. They also cite a lack of a mandate to use more cost-effective technologies, a lack of hydro-electric storage, and a plan to sell the Can\$100/MWh surplus from Site C at a profit. These points have been effectively rebutted by extensive expert testimony.

The Commission’s final report on Site C is due on November 1, 2017.

Our extensive testimony in the proceeding in front of the British Columbia Utilities Commission is available at [the BCUC website](#) as party submissions entitled F35. These documents are also available on our own website [here](#), [here](#), [here](#), [here](#), and [here](#). We also testified twice at the Technical Presentation Sessions on October 13 and 14, 2017. The BCUC has the information it necessary to make a data-driven decision.

¹Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*. 12, 183-206.