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BCUC INQUIRY RESPECTING SITE C

F 35-9

Organization: PVLA and PVEA

Date: September 28, 2017

Subject: Expert Submission on Question 58

Good Afternoon Commission Secretary Patrick Wruck,

Please find attached our Phase 2 submission on Question 58 from Peace Valley Landowner Association and Peace Valley Environment Association expert Robert McCullough.

Please let me know if there is any other information you require or any questions you may have.

Thank you for your assistance in this regard. I can be reached at [REDACTED]

Rob Botterell

McCULLOUGH RESEARCH

ROBERT F. MCCULLOUGH, JR.
PRINCIPAL

Date: September 28, 2017

To: British Columbia Utilities Commission

From: Robert McCullough
Eric Shierman
Robby Gottesman

Subject: Question 58 -The Sunk Cost Fallacy

Question 58 in the preliminary report appears to suggest that sunk costs are a consideration and ought to be included in an assessment of the cost of terminating Site C and replacing Site C with a portfolio of renewables.

It is well accepted that sunk costs are not considered in such decisions.

A sunk cost is a past expenditure that cannot be recovered. Economic theory states that sunk costs are never considered in economic decisions, because these costs are fixed, regardless of what decision is made. The famous professor and jurist, retired U.S. Appeals Judge Richard A. Posner, commented in his study of the economics of law:

We commit the "sunk costs" fallacy, or throwing good money after bad. That is, in making decisions, we frequently ignore the adage of letting bygones be bygones; we are unable to ignore costs that, having already been incurred, cannot be altered by the decision.¹

Economists call an attempt to factor sunk costs into economic decisions as the "Sunk Cost Fallacy." The Cambridge Business Dictionary defines the term as:

[t]he idea that a company or organization is more likely to continue with a project if they have already invested a lot of money, time, or effort in it, even when continuing is not the best thing to do:

Economists would point out that the sunk cost fallacy is irrational, and could be described as "throwing good money after bad".²

¹ Economic Analysis of Law (7th Ed.), 2007, U.S. Appeals Judge (retired) Richard A. Posner, page 17.

² <http://dictionary.cambridge.org/us/dictionary/english/sunk-cost-fallacy>.

Rational business decisions should be made on the basis of minimizing costs that can actually be avoided.

The modern practice of economics traces its roots to the Marginal Revolution when Stanley Jevons of the University of Manchester published *A General Mathematical Theory of Political Economy* in 1862. This sparked a fruitful intellectual departure from the classical economics of Adam Smith.

Alfred Marshall later packaged these new ideas into the first modern economics textbook: *Principles of Economics* (1890). Their work established the British approach to economics as the entire world's basis for the discipline. This approach is called "marginalist" since it focuses on the marginal or incremental decision making of economic actors. Since then, one will find a warning against the Sunk Cost Fallacy in every introductory economic textbook, including those used at Canadian universities.

It's somewhat understandable why falling for the Sunk Cost Fallacy remains so common in public policy debates, long after the analytical tools were invented to debunk its validity. This seems to be deeply ingrained in our evolutionary psychology, springing from two well documented cognitive biases.

The first cognitive bias is called the requisite of personal responsibility. Sometimes when we make mistakes, our sense of personal responsibility compels us to suffer further losses, rather than avoid them.

In a classic paper for the field of behavioral economics, Barry Staw and Catherine Blumer studied ninety-six business students, giving their subjects a choice between making an R&D investment either in an underperforming department or in other divisions in a simulated company.³ The students were divided into two groups, depending on their measured sense of personal responsibility: a low responsibility group and a high responsibility group. In the high responsibility group, the participants were told they, as the manager, had made an earlier, disappointing R&D investment. In the low responsibility condition, subjects were told that a former manager had made a previous R&D investment in the underperforming division and were given the same profit data as the other group. In both groups subjects were then asked to make a new \$20 million investment. The high responsibility group invested on average \$12.97 million while the low responsibility group averaged \$9.43 million.

³ Staw, Barry; Blumer, Catherine, "Knee Deep in the Big Muddy," 1976, *Organizational Behavior and Human Decision Process*, 35: 124–140.

The second cognitive bias is our overoptimistic probability bias. Our brains are hard wired to become more assured about an investment's success, after we commit the money than before.

In another classic paper, R.E. Knox and J.A. Inkster surveyed one hundred and forty-one gamblers at a horse racing track where seventy-two had just finished placing a \$2.00 bet within the past thirty seconds, and the other sixty-nine gamblers were about to place a \$2.00 bet in the next thirty seconds.⁴ Knox and Inkster asked these subjects to rate their horse's chances of winning on a seven point scale. They found people who were about to place a bet rated the chance that their horse would win at an average of 3.48. People who had just finished betting gave an average rating of 4.81.

The Sunk Cost Fallacy exists because humans have demonstrated a natural emotional difficulty deciding whether or not to proceed down the path of a past mistaken choice.

In the case of Site C, British Columbia Hydro has spent approximately a fifth of the nine billion dollars needed to build the hydroelectric project. The dollars are spent and cannot be recovered whether the dam is completed or not. Part or all of the remainder – approximately seven billion dollars – *can* be saved if a less expensive alternative is selected. This is the proper decision making framework.

⁴ Knox, RE; Inkster, JA, "Postdecision dissonance at post time," 1986, *Journal of Personality and Social Psychology*. **8** (4): 319–323.