



Matt Massey/DC/USEPA/US
03/19/2009 10:14 AM

To: Rebecca Fox/R4/USEPA/US@EPA
cc: Palmer Hough/DC/USEPA/US@EPA
bcc:
Subject: Re: PCS again

Hi Becky and Palmer,

Here are a few slides. Let me know if you have questions or if anything is not clear.

Thanks.

Matt



Cost Practicability Analysis.ppt

Rebecca Fox

Hi Matt, Palmer and I were strategizing about ou...

03/18/2009 01:46:31 PM

From: Rebecca Fox/R4/USEPA/US
To: Matt Massey/DC/USEPA/US@EPA
Date: 03/18/2009 01:46 PM
Subject: PCS again

Hi Matt,

Palmer and I were strategizing about our mtg next Tue and were thinking it would be good if we had a few slides as to how we got to NPV values, what they mean, and data you generated using their #s. Would you be able to pull a few things together for us like that? If not, I understand too. You have been invaluable to us at such short notice and we really appreciate all you've done! b

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Cost Practicability Analysis

- Using expected cost and value data from the FEIS it is possible to calculate expected profit per year for every year of every alternative.
- Calculating the Net Present Value (NPV) of the stream of annual profits for each alternative then allows for the comparison of projects of differing lengths in equal terms (current year \$'s).
- An alternative with a positive NPV will add positive value to the applicant firm if undertaken and therefore demonstrates at least a minimum level of cost practicability

Cost Practicability Analysis - NPV

- A dollar in the future is worth less than a dollar today due to the time value of money and investment risk (among other things).
- The amount that the value of a future dollar is discounted is given by the discount rate.
- The NPV of an alternative is the value of the stream of future profits in today's dollars.

$$NPV = \sum_t^T \frac{profit_t}{(1+r)^t}$$

where t (t=1 T) indexes the years of an alternative and r is the discount rate. Following OMB guidance we have used a 3% and 7% discount rate

Cost Practicability Analysis – Data Used

- 1991 to 2007 USGS adjusted price per ton estimates from Table 2-7 on page 6-12 of Volume 1 of the FEIS
- Cost per ton estimates for each year for each alternative from Table 2-6 on page 6-11 of the FEIS
- Expected tons extracted from each alternative for each year from the tables in Appendix D of the FEIS.

Cost Practicability Analysis – Procedure

- First, a time trend was regressed on 1991 to 2007 USGS adjusted price per ton estimates to predict expected future prices per ton for the next 50+ years.
- Next, estimated cost per ton for each alternative for each year was subtracted from the estimated expected price per ton to give expected profit per ton per year for each alternative. (price per ton - cost per ton = profit per ton)
- Then, expected profit per ton per year for each alternative was multiplied by the number of expected tons mined per year for each alternative to get total expected profit per year for each alternative. (profit per ton * number of tons per year = total annual expected profits)
- Finally, using both a 3% and 7% discount rate annual total profits for each year for each alternative are discounted back to their 2008 value. The NPV of each alternative is then the sum of its discounted annual total profits.