

How GREEN is “Clean Line” GBE

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

- What will it do to our trees?
- Will it produce any CO2?
- How about oxygen produced by the destroyed trees?

Witness Exhibit No. 55
Date 9-4-14 Reporter _____
File No. EA-2014-0207
Carrollton, MO

What will be the damage to our forest?

- Look at a map of the proposed route
- Swath 250 ft wide X 5280ft long = 1,320,000 sq ft/ mile
- 30 A of land used/ mile
- 1,320,000 sq ft/ 43,560sq ft/ Acre = 30.3 A/mile
- Conservative estimate of 6A of trees destroyed/mile
- 6A/mi X 750 mi = 4500 A of Trees destroyed
- 4500 A of Trees

How much CO₂ is absorbed/ A of trees?

- Tree Power
- By C. CLAIBORNE RAY
- Q. My family owns a 40-acre woodlot of relatively mature deciduous trees. How many pounds of carbon dioxide does such a forest absorb in a typical year? And how many pounds of oxygen are emitted?
- A. “An approximate value for a 50-year-old oak forest would be 30,000 pounds of carbon dioxide sequestered per acre,” said Timothy J. Fahey, professor of ecology in the department of natural resources at Cornell University. “The forest would be emitting about 22,000 pounds of oxygen.”
- The New York Times, Dec 3, 2012

Destruction of 4,500 A of Trees

- Conversion Factor for Carbon Sequestered by 1 Acre of Forest Preserved from Conversion to Cropland (substitute destroyed for “Clean Line” GBE)
- Note: Due to rounding, performing the calculations given in the equations below may not return the exact results shown.
- $-35.32 \text{ metric tons C/acre/year}^* (44 \text{ units CO}_2 \div 12 \text{ units C}) = \underline{\underline{-129.51 \text{ metric tons CO}_2\text{/acre/year (in the year of conversion)}}$
- *Negative values indicate CO₂ that is NOT emitted.
- Sources
 - EPA (2012). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010. U.S. Environmental Protection Agency, Washington, DC. U.S. EPA #430-R-12-001 (PDF) (481 pp, 16.6MB, About PDF)
 - IPCC (2006). Guidelines for National Greenhouse Gas Inventories. Volume 4. Agriculture, Forestry and Other Land Use. Task Force on National Greenhouse Gas Inventories.

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Not so “Clean Line”

- 652,000 Tons of CO₂ will be produced by destroying 4500 A of trees
- Those destroyed trees will no longer absorb 15 T of CO₂/ acre/ year
 - 15T/Acre X 4,500A = 67,500 T of CO₂ not sequestered/ year
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CO2 cost to Missouri

- 206 miles of Power line
- 6 A of trees destroyed/ mile
- 145T of CO2 released/ A of tree destruction
- $206 \times 6 \times 145 = 179,220$ T of CO2 released
- $206M \times 6A \times 15T/A = 18,500$ T of CO2/yr no longer absorbed.

CO2 production in construction

- The numbers do not even consider the volume of CO2 produced during construction of the line by diesel machinery and trucks
- The numbers do not include the CO2 produced by maintenance of the line

Oxygen loss

- 22,000 lbs of Oxygen produced/Acre/Year-
Professor Fahey, Cornell University
- $22,000 \times 4500$ Acres of trees destroyed =
9,900,000 of oxygen that will not be produced
over each year