

# Next Steps for Columbia Transmission Lines Project: Discussion Document

Ian Thomas, January 31st, 2016

## Introduction

At the January 19th City Council meeting, the Council voted to delay a final decision (Option A vs. Option B/B-2) on the route of power lines in southern Columbia. While it is not good practice for Council to reverse previous decisions, this issue is of sufficient complexity and significant citizen impact to warrant Council taking additional time, while remaining questions are answered.

Specifically, my reasons for supporting a delay were:

- A final decision would have been premature, given the widespread emotion surrounding this issue;
- There has been confusion and conflicting information about the cost of the various options and their impacts on homes, businesses, and services;
- I did not have adequate information on which to base a vote for either option.

I do not believe the issue should remain unresolved for any longer than necessary. This discussion document is intended to move us toward a consensus as quickly as possible. In the next sections, I will outline my understanding of (a) the problem(s) the transmission lines project is intended to solve, and (b) how effectively each option will perform. Within this discussion, *several questions for staff will arise*, and these will be compiled in the final section.

## My understanding of the problem(s)

The transmission lines project is intended to solve two independent problems:

1. Fulfill Columbia's responsibility as part of regional transmission network to connect the Perche substation (currently a "dead-end" in the 161 kV system) to another part of that system with 161 kV wires;
2. Increase load-serving capacity in south Columbia to build redundancy and additional capacity for future growth in peak demand.

Problem #1 is related to federal regulatory requirements which, if not addressed, could lead to regional failures and potential federal fines, reputed to be as high as \$1 million/day. Several substations with 161 kV connections could be connected to the Perche substation, including:

- Bolstad (north of Columbia)
- Grindstone (east of Columbia)
- McBaine (south of Columbia)

Option A connects Perche to Grindstone while Options B/B-2 connect it to McBaine.

- *Question: Why is a 161 kV connection between Mill Creek and McBaine included as part of the Option A design.*

Problem #2 is related to previous and projected growth in electricity demand in south Columbia. Existing substations (which step high-voltage transmission power down to low-voltage distribution power for delivery to homes and other buildings) serving this area are approaching peak loads at which the failure of one component could lead to black-outs while repairs are made. As a first step toward adding capacity in south Columbia, the City has purchased land close to Nifong/Providence on which to construct the Mill Creek substation, which will relieve some of the load currently carried by Perche, Hinkson, and Grindstone. The next steps are to build the substation and connect it to either the 69 kV network or the 161 kV network.

Option A is an extremely elegant solution, which solves both Problems #1 and #2 in a single project. In connecting the Perche substation to the Grindstone substation with 161 kV wires along Nifong, the new Mill Creek substation is perfectly located to connect to the 161 kV network, adding a high level of load-serving capacity for future growth.

Option B, on the other hand, solves the two problems with two separate projects - a 161 kV connection around the south-west part of Columbia (Problem #1) and linking Mill Creek into the 69 kV network between Hinkson and Grindstone (Problem #2).

I believe it is the City Council's responsibility, as representatives of Columbia residents and taxpayers, to understand the financial, esthetic/property-value, and other impacts of the different options and choose one that maximizes benefit (or minimizes harm) in these areas while providing solutions for the problems that need to be solved.

### **Analysis of the possible solutions**

According to staff reports, each of the three options (A, B/B-2) solves both problems, However, Option A solves Problem #2 for a longer term than do Options B/B-2, meaning additional investment may be required in 10-20 years.

In order to evaluate this concern, *the Council needs information about how much peak capacity is currently available at the existing substations and what growth in demand is projected for the next 10-20 years and for the next 40-50 years.* If, according to best available projections, Option B/B-2 is only a partial solution, the Council should seriously consider Option A.

With regard to negative impacts of the two projects, Options B/B-2 appear to be preferable to Option A. Constructing a 161 kV connection along an already-developed corridor such as Grindstone/Nifong/Vawter School seems unusual. Option A impacts four times as many homes and businesses as Option B, (and many more schools, health facilities, nursing homes, etc.). Finally, the cost of Option A appears to be significantly higher than Options B/B-2, *although this point needs further clarification and cost analysis before the Council makes a final decision.*

Burying transmission lines underground costs 5-10 times more than constructing them overhead, making it prohibitively expensive to underground the entire length of Option A. On the other hand, Options B/B-2 have lower impacts on homes and businesses (primarily located in short stretches alongside the Steeplechase, Thornbrook and Cascades subdivisions, and Scott Blvd.) and it may be feasible to share undergrounding costs with the impacted neighborhoods for their esthetic, property value, or other non-power-related benefit.

### **Remaining Questions:**

- *Are any of the foregoing assumptions or interpretations incorrect?*
- *What are the most accurate cost estimates for Options A and B/B-2, including amount expended on Option A that cannot be shifted to Options B/B-2?*
- *What additional benefit is provided by a 161 kV connection between Mill Creek and McBaine over and above the connection between Perche and Grindstone?*
- *If the Perche to Grindstone section of Option A is built now, what will be the additional cost of the Mill Creek to McBaine section and when will that need to be built?*
- *How much peak capacity is currently available at the substations in south Columbia, what growth in demand is projected for the next 10-20 years, and what growth in demand is projected for the next 40-50 years.*
- *How much additional capacity will be provided by Option A, by Options B/B-2 (connecting Mill Creek into the 69 kV network), and by a new option that brings a 161 kV connection into Mill Creek from Grindstone?*
- *How much would it cost to bring a 161 kV connection into Mill Creek from Grindstone, and are there options to avoid the "double-line" of 161 kV wires disadvantage?*
- *Are there precedents in other cities for energy providers to negotiate cost-share agreements with home-owners' associations to pay for undergrounding transmission lines?*
- *What is the potential for "Non-Transmission Alternatives" (over and above current programs) to reduce the size/cost of these options?*