CITY OF COLUMBIA, MISSOURI

COLUMBIA WATER & LIGHT

December 8, 2015

There is an important meeting in January regarding The Columbia Electric Transmission Line Project, and Columbia Water & Light (CWL) wants to notify you as well as provide some background information as to why this meeting was requested.

WHAT:	**Public Hearing**
WHEN:	**Tuesday, January 19, 7:00 p.m.**
WHERE:	**Columbia City Council Chambers, City Hall, 701 E. Broadway**
WHY:	Reopen the discussion on the route selection for The Columbia Electric Transmission Line Project

Why it is important to attend: This is a special, second public hearing (the first one was in July 2013) on route selection for The Columbia Electric Transmission Line Project. Following the public hearing in 2013, the City Council voted to approve the current route, known as Option A. This was after a lengthy process where City Council considered other routes known as Option B and Option B-2. Line design and equipment procurement for the approved route (Option A) began in 2014. Since that time, some concerns have been raised about the approved route. On November 16, 2015, the City Council voted to hold a special, second public hearing to reconsider route options. For the special public hearing, route Option B and B-2 also are being reconsidered.

The current Columbia Electric Transmission Line Project includes a new substation and 161 kV high-voltage transmission lines along the 2013 approved route that includes Scott Boulevard, Vawter School Road, Nifong Boulevard, Grindstone Parkway and Providence Road/Route K. Option B and B-2 utilize 161 kV lines that run on the southwestern edge of the city with a new 69 kV section of line also built along Buttonwood and the Campus View Drive area.

Throughout 2015, there was a lot of activity along the approved route in preparation for the new line, even though anticipated construction would not occur until 2017. If you live along the 2013 approved route (Option A), you may have seen preparatory work started, or even attended an Open House in the fall of 2015 to learn about pole placement and pole design. To date, CWL has encumbered $7.1 million on the project including substation land, 161 kV equipment and engineering work such as surveying, soil studies, utility locating, pole design and preliminary pole placement. Work on the project stopped in November 2015 and is on hold pending outcomes of this special public hearing.

Many people believe that The Columbia Electric Transmission Line Project only affects Columbians living in the southern part of the city. CWL's electric system improvements are paid through customers' rates, not taxes. While there is a growing demand for electricity in this area, it is important to note that the electrical grid for the city works as an integrated system that manages and carries electricity to customers throughout the entire community.

History of the project: From 2009 through 2015, the project has been subject to public discussion with feedback gathered throughout the process. The graphic on the following page provides a snapshot of the community communication and decision-making that has occurred on this project. This should help you understand the review process for the routes that were considered (Options A, B and B-2), and the approval of the selected route (Option A).

The power grid in Columbia: The City of Columbia operates under required federal reliability guidelines and mandates that it must meet. Additional transmission electrical capacity is needed to reliably deliver electricity to Columbians now and in the future. Columbia also is the transmission connection for other load-serving utilities including the City of Fulton and the University of Missouri.

Approximately 90 percent of Columbia's energy comes from sources outside the city. Electricity is generated at a power station or power plant from fossil fuels or renewable resources. Once the power is generated, it moves to where it will be used. High-voltage electric transmission lines transfer the large amount of electricity from where it is generated to substations. At substations, the voltage is stepped down so it can be delivered to customers through the distribution system. To learn more about this, go to http://www.gocolumbiamo.com/WaterandLight/Electric/ProposedElectricTransmission.php.

Please attend and express your opinion: Please make every effort to attend the public hearing. If you would like to express your opinion, contact your City Council representative. To find the council member for your ward, visit http://www.gocolumbiamo.com/Council/Meet_The_Council/.

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Proposition 1 Fact Sheet
Electric Bond Issue Fact Sheet

Election: On April 7, 2015, voters will decide if the projects outlined below on the next page be paid for with bond funds. A simple majority is needed to pass this initiative.

Purpose: Columbia Water & Light is requesting $63.1 million to be borrowed to pay for projects throughout the electric service territory. See the next page for more details.

Use of Bond Funds: Columbia Water & Light pays for large capital projects with a combination of cash and borrowed money. Historically voters are asked to approve bond financing every 5 years. The last election when bond funding was requested for electric system upgrades was in 2006 for $60 million. Borrowing money to pay for large scale capital improvement projects spreads the cost of the projects over time so current and future users of the system pay for the improvements.

Rate Impact: If the bond issue passes, electric customers will see a total 6% increase over a five year period: 3% in 2015, 2% in 2017 and 1% in 2018. Taxes will not be impacted by this bond initiative. If the bond issue does not pass, more dramatic rate increases will be needed to cover the costs of the project. It is estimated that the increases will need to be 3 to 4 times higher (20 to 25%) with some reductions possible in five years.

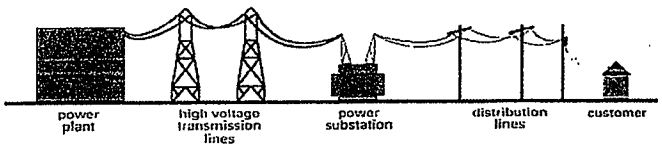
Use of Cash: The amount of money set aside in Columbia Water & Light cash reserves has been dipping below the policy's target level. Cash or reserves will be used to fund some projects on the $87.5 million Capital Improvement Plan list for the next five years. These projects include items like street lights and new connections. The City Council will review the cash funded projects each year through the budget process.

Ballot Language: Shall the City of Columbia, Missouri issue its Waterworks and Electric System Revenue Bonds in the amount of $63,100,000 for the purpose of extending, expanding, improving, repairing, replacing and equipping the City owned electric system? YES ( ) NO ( )

The authorization of the bonds will authorize the City to fix, establish, maintain and collect rates and charges for the use and service provided by the City through its Waterworks and Electric Systems, including all extensions and improvements thereto hereafter constructed or acquired by the City, in addition to the other rates and charges for such services provided by law, as will produce income and revenues sufficient to provide funds to pay the costs of operation and maintenance of the Waterworks and Electric Systems and the principal of and interest on the bonds as they become due and to retire the same within thirty-five (35) years from the date thereof, and to provide for the establishment of reasonable reserves therefor.

Electric System Basics

After electricity is produced, the voltage is stepped up so transmission lines can carry a large amount of power over a distance. Transmission lines go into a substation where the voltage can be lowered. The power is then ready to be shipped to homes and businesses through the electric distribution system.



Electric transmission and distribution systems are interconnected. This design enables utility staff members to isolate a problem on one line and bring in power from another line to limit service interruptions.

Proposition 1 Fact Sheet
Electric Bond Project List

Replacement & Upgrade Infrastructure Total	**$10,350,000**
Distribution transformers & capacitors	$3,800,000
Replace existing transmission	$500,000
Replace existing underground	$1,250,000
Replace existing overhead	$2,750,000
Replace circuit breakers	$500,000
Replace substation switchgear	$350,000
Substation transformer replacement	$1,200,000
Transmission & Substation Project Total	**$36,150,000**
Millcreek 161/69 kV substation	$5,000,000
Millcreek, Grindstone & Perche interconnection	$18,000,000
Substation upgrades Grindstone & Perche	$1,000,000
Underground distribution lines in transmission corridor	$5,000,000
Substation feeder reconfiguration	$7,150,000
System Modernization Total	**$4,900,000**
Power plant substation upgrades	$1,500,000
Natural gas boiler #8 upgrades	$1,900,000
Columbia Energy Center – controls upgrade	$1,500,000
System Expansion Total	**$6,600,000**
Landfill gas generator unit 4	$1,600,000
Extend Hinkson Creek substation feeder	$5,000,000

Total for projects: $58,000,000

Contingency fund: $2,000,000

Bond issuance plus reserve requirement (for 1st issuance, 2nd issuance funded by cash): $3,100,000

TOTAL BOND ISSUE: $63,100,000

AT A GLANCE

Columbia Water & Light's Electric Transmission and Substation Project

HISTORICAL INFORMATION

2007
Need for substation & transmission identified

Jan. 2009
Interested Parties meeting for substation

Feb. 2010
Project overview at Council work session

March 2010
City Council approved acquiring substation property

Feb. 2011
Report with comments from Option A area residents and cost/details re: undergrounding lines

April 2011
Report to Council re: feedback reviewed to determine best route for Option A

April 2011
Council authorized engineering firm contract change to explore Option B

Aug. 2012
Report to the City Council on Option B route options & feedback from area residents. Option B-2 was suggested by staff for route on city-owned property

Jan. 2013 Letter about project survey was sent to 39,500 Columbia Water & Light electric customers

May 2013
Report to Council – reviewed community feedback

June 2013
City Council work session – complete history of project

Jan. 2015
Council work session - project website and hotline reviewed

April 2015
Bond election – included funding for transmission/ substation

Sept. 30, 2015
Open House for transmission structure placements

Jan. 19, 2016
Public Hearing to reconsider route options

May 16, 2016
Work session- directed to study new northern route

2007 — 2009 — 2010 — 2011 — 2012 — 2013 — 2014 — 2015 — 2016

Sept. 2009
Criteria for proposed transmission line routes reviewed at work session

Oct. 2010
Three Interested Parties meetings for ten proposed routes for Option A*

Nov. 2010
Work session- comments from area residents and EMF info. Council asked for another route option

Aug. 2011
Report to the City Council on eight possible Option B routes

Sept. 2011
Interested Parties meeting with possible routes for Option B reviewed*

Nov. 2012
Interested Parties meeting – review of Option A & B*. EMF discussed

July 2013
City Council Public Hearing – Option A to be built overhead was decided

2013 - 2015
Customers/property owners & neighborhood/home owners associations within 150 feet of route notified of survey and soil sampling

CITY COUNCIL | INTERESTED PARTY MEETING/PUBLIC FEEDBACK

* Comments collected from those living in all the areas of the proposed routes

Electric Transmission Proposed Project

This project involves adding transmission lines to connect the new Mill creek substation on Peach Tree Drive with some of the existing substations. After a special, second public hearing on the route for the transmission lines, the Columbia City Council decided on January 19, 2016 not to build transmission lines according to the Option A route. **This project is on hold until further direction is given by the City Council.**

QUESTIONS? Call the Electric Transmission Project information line (844)244-7870 (toll free)

Sign up for e-mail updates – select the Southern Columbia Electric Transmission Line project .

Why do we need a new substation and transmission lines in Columbia?

To handle electric load growth in southern Columbia and for reliability purposes. There is a growing need for more electricity on the southern side of Columbia. Substations in the area are approaching their maximum capacity both electrically and physically. This makes them vulnerable to being overloaded which could cause power outages and damage to other equipment in the system.

Transmission systems need to be built so one outage will not cause overloading of another transmission line. If there are two outages, the system must be built so there are not cascading outages. A new substation and transmission lines in Columbia will reduce the loading on the existing substations, ensure greater electric reliability and will improve regional stability for the power grid.

What is a power grid?

Electrical power delivery systems are built with an interconnected network of transmission and distribution lines. That way if there is a problem with one section of an electric line, operators can switch the flow and provide electricity to customers with another line. An interconnected electric grid helps the reliability of the system and can greatly reduce the length of an outage

Can transmission lines be buried?

The Columbia City Council decided to build the new transmission lines overhead. Due to the high voltage of the electricity the lines carry, it is much more involved to bury them than it is distribution lines. Transmission lines are not frequently buried in the United States due to the cost. Placing transmission lines underground in Columbia is estimated to cost $7.6 million per mile versus $1.1 million per mile for overhead construction. The estimated rate impact per customer to build the lines underground would be $8.26 per month for 20 years versus $1.18 for overhead. (NOTE: This information has not been updated since 2013. Since that time, the Columbia City Council has not requested any additional information on the costs of burying transmission lines.

What process was used to come up with the proposed routes?

Sega, Inc. was hired by the city to evaluate different transmission line routes to start the public discussion. The consultants divided the project into three different sections and proposed three to four different routes for each section. The initial routes were chosen using these criteria:

- Streets preferred over backyards and cross country
- Main roads preferred over side streets
- Commercial corridors preferred over residential
- Most direct route preferred (fewest angles in the route)

After the initial routes were selected, they were presented to the public and the City Council. Written public comment was tabulated to formulate a selection matrix for each route. Columbia Water & Light collected feedback during late 2012/early 2013 to determine the public's most favorable route and the preference for building overhead or underground electric transmission lines.

Project Documents

Option E Analysis Report July 2018

Previous Transmission Project Timeline

City Council work session Presentation May 16, 2016

Council information regarding the transmission project on January 19, 2016

- Memo to the City Council about the project
- Presentation from the meeting

Council information regarding the transmission project on November 16, 2015

- Report to City Council Nov 2015
- November 2015 City Council presentation
- Transmission Project Fact Sheet

City Council Public Hearing to Determine Route

Download the presentation file: July 15, 2013 City Council meeting

Public feedback on electric transmission line project route selection

Option A Route

Option A was selected by the City Council as the route for the new transmission lines in 2013 and then the City Council decided against Option A in January 2016. The intent of the Option A alignment study is to connect 161 kilovolt circuits to the Mill Creek substation from the Grindstone, Perche Creek, and McBaine substations. The route will run along Providence, Grindstone/Nifong /Vawter School Road and Scott Boulevard.

Columbia Water & Light staff members support Option A for the following reasons:

- Meets the need for both the transmission and distribution capacity for the longest term with a single cost-effective solution.
- Transfers load to the 161 kV system and preserves current 69 kV capacity 161 kV option more than doubles the power transmission capacity
- Does not require rebuilding of existing 69kV system
- Provides connections between 3 different import substations which is a more reliable & longer term solution
- Route Option B has four times the number of second contingency issues than Option A
  Uses more existing easements than route Option B
- Water & Light Advisory Board endorsed Option A without undergrounding options

Map of Option A

Memo about Option A that went to Council on April 18, 2011

Option A Selection Matrix Results from 2011

- NOTE: The work on the pole structure type and locations was stopped after the City Council decided to hold a special, second public hearing on the transmission line route. The pole structure type and locations shown in the video are at the 30% design phase so there might still be changes to pole types and locations.

Option B & B-2 Routes

The intent of the alternatives in the Option B alignment study is to connect the Mill Creek substation with 69 kilovolt lines along the existing 69 kilovolt line route from the Grindstone substation to the Hinkson Creek substation. Option B will place the Mill Creek substation in series with the 69 kilovolt circuit from Grindstone to Hinkson Creek substations. In addition, Option B connects the McBaine substation to the Perche Creek substation via a 161 kilovolt line routed along the southwestern periphery of the city limits as Council suggested. Public feedback was used for the evaluation matrix to determine the preferred routes for Option B.

After the publicly preferred route for Option B was identified, Columbia Water & Light staff looked into the possibility of moving a section of the line to city owned property near the Wastewater Treatment Plant, the city's wetland cells and the Water Treatment Plant. These properties also contain a section of the MKT trail. Option B-2 was presented to the City Council in August 2012 and at a public meeting in November.

Option B map – publicly preferred route

Option B-2 map – publicly preferred route

Report to the City Council on 8-20-12: Mill Creek Substation Transmission Study – Option B

Option B Selection Matrix Results & Preferred Routes report from 2012

Presentation to the City Council on August 20, 2012

Determining Pole Placement

Determining pole placement along Option A has been stopped due to the City Council reversing its decision on building lines along the Option A route. Proposed pole placement along the route has been determined and comments regarding these locations are being collected. There are a number of factors taken into consideration before a decision can be made, including:

- working around underground utilities

- location of street intersections
- soil stability
- easement rights and space/lengths between each pole

Are there health concerns associated with EMF?

Electric and Magnetic Fields (EMF) are generated by the flow of electrons. Electric fields are established between points of different voltages. Magnetic fields are generated by electrons flowing in a conductor. EMF are generated by electric lines as well as many common household items. EMFs decrease in strength with distance from the source.

According to the Environmental Protection Agency, "Much of the research about power lines and potential health effects is inconclusive. Despite more than two decades of research to determine whether elevated EMF exposure, principally to magnetic fields, is related to an increased risk of childhood leukemia, there is still no definitive answer. The general scientific consensus is that, thus far, the evidence available is weak and is not sufficient to establish a definitive cause-effect relationship.

Please see these reports and web sites for more information about EMF and any possible health issues

Guide to EMF and Health

U.S. National Cancer Institute on EMF

American Cancer Society on EMF

Comparison of Bio-Initiative on EMF Claims

Additional Reports and Presentations to City Council

- November 22, 2010: Presentation for the City Council work session
  - Questions and answers from the work session
- February 21, 2011: Presentation for Pre-City Council meeting
- April 5, 2011: Amendment to change order to the contract with the Sega Engineering
- August 1, 2011: Report to Council on Option B
  - McBaine to Perche Creek 161 kV Line Route Options (Figure 1)Presentation for the City Council
  - Grindstone to Mill Creek to Hinkson Creek Options (Figure 2)
- September 28, 2011: Open House Presentation

- November 13, 2012: Open House Presentation
- May 20, 2013: Report to City Council on the public's feedback
- June 13, 2013: Presentation for the City Council work session (6.87 MB)