INTRODUCED: January 8, 2018

A RESOLUTION No. 2018-R002

To declare a public necessity to amend ch. 30 of the City Code and to initiate an amendment to the City's zoning ordinance to make such lawful changes as may be necessary to require electric utility distribution lines to be buried underground instead of suspended on overhead distribution tap lines by requesting that the Chief Administrative Officer cause to be conducted a study to determine whether and, if so, how the City's zoning ordinance lawfully may be amended to require, to the extent permitted by law, electric utility distribution lines to be buried underground instead of suspended on overhead distribution tap lines.

Patron – Ms. Robertson

Approved as to form and legality
by the City Attorney

PUBLIC HEARING: JAN 22, 2018 AT 6 P.M.

WHEREAS, section 15.2-2286 of the Code of Virginia (1950), as amended, provides that a zoning ordinance may include, among other things, reasonable regulations and provisions for the amendment of regulations or district maps from time to time; and

WHEREAS, in accordance with section 15.2-2286 of the Code of Virginia (1950), as amended, such amendment may be initiated by resolution of the governing body, provided that any such resolution by the governing body proposing an amendment to the regulations or district maps shall state the public purposes therefor; and

AYES: 9 NOES: 0 ABSTAIN: _____

ADOPTED: JAN 22 2018 REJECTED: _____ STRICKEN: _____

WHEREAS, as of July 1, 2017, section 56-585.1 of the Code of Virginia (1950), as amended, provides that the replacement of any subset of a utility's existing overhead distribution tap lines that have, in the aggregate, an average of nine or more total unplanned outage events-per-mile over a preceding ten-year period with new underground facilities in order to improve electric service reliability is in the public interest and establishes a rebuttable presumption that the conversion of such facilities will provide local and system-wide benefits; and

WHEREAS, the Council of the City of Richmond believes that unplanned outage events due to overhead distribution tap lines in the city result in added costs and interruptions to the activities of residents of and businesses located in the city every year; and

WHEREAS, the Council believes that it is in the best interests of the citizens of the City of Richmond that the City amend its zoning ordinance, codified as Chapter 30 of the Code of the City of Richmond (2015), as amended, to make such lawful changes as may be necessary to require electric utility distribution lines to be buried underground instead of being suspended on overhead distribution tap lines;

NOW, THEREFORE,

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF RICHMOND:

That the City Council hereby declares that the public necessity, convenience, general welfare and good zoning practices of the City require the initiation of an amendment of the zoning ordinance set forth in Chapter 30 of the City of Richmond (2015), as amended, to make such lawful changes as may be necessary to require electric utility distribution lines to be buried underground instead of being suspended on overhead distribution lines.

BE IT FURTHER RESOLVED:

That, pursuant to section 15.2-2286 of the Code of Virginia (1950), as amended, the City Council hereby initiates an amendment to the City's zoning ordinance by requesting the Chief Administrative Officer to cause to be conducted a study to determine whether and, if so, how the City's zoning ordinance lawfully may be amended to require, to the extent permitted by law, electric utility distribution lines to be buried underground instead of being suspended on overhead distribution tap lines within the city of Richmond and to provide the Council with a report concerning the results of the study and the recommended changes to the zoning ordinance based on such study as soon as practical after the adoption of this resolution.

BE IT FURTHER RESOLVED:

That the City Planning Commission is hereby directed to hold a public hearing on any such proposed changes to the zoning ordinance and submit its recommendation and any explanatory materials to the City Council as soon as practicable.

Richmond City Council

The Voice of the People — *Richmond, Virginia*

Office of the Council Chief of Staff

Ordinance/Resolution Request

TO **Allen Jackson, Richmond City Attorney**
Richmond Office of the City Attorney

THROUGH Lou Brown Ali
Council Chief of Staff

FROM William E. Echelberger, Jr, Council Budget Analyst

COPY Ellen F. Robertson, 6th District Representative
Haskell Brown, Deputy City Attorney
Meghan K. Brown, Deputy Council Chief of Staff MKB
Kiya A. Stokes, 6th District Liaison

RECEIVED
DEC 22 2017
OFFICE OF CITY ATTORNEY

DATE December 22, 2017

PAGE/s 1 of 2

TITLE **Amend Zoning for Underground Utilities**

This is a request for the drafting of an **Ordinance** ☐ **Resolution** ☒

REQUESTING COUNCILMEMBER/PATRON

Ellen F. Robertson, 6th District Representative

SUGGESTED STANDING COMMITTEE

Land Use, Housing, and Transportation

ORDINANCE/RESOLUTION SUMMARY

The Patron requests a resolution to initiate an amendment to the City's zoning ordinance that will require utility lines to be buried, instead of suspended overhead.

BACKGROUND

Summary:

- Every year overhead utility lines in the City of Richmond are brought down numerous times by storms and other causes.
- A 2009 study published by the Ernest Orlando Lawrence Berkley National Laboratory found that the economic costs of a power outage varies by type of utility customer.
  - The cost of an eight hour outage ranged from $8.50 for a residential customer on a winter weekday to a high of $93,890 for a medium to large commercial or industrial customer on a summer weekday.
  - 2017 costs are likely higher due to inflation.
- A 2017 report by the Cable News Network (CNN) noted that the cost to bury power lines can be $1.0 million per mile. This typical cost varies greatly depending on geology, and the presence of existing underground infrastructure.

- Dominion Resources estimated the cost of the pilot underground program approved by the State Corporation Commission in 2016 to be approximately $140 million for 400 miles of underground lines, or $350,000 per mile.
- In 2017, the Virginia General Assembly passed SB1473, which will allow Dominion Resources to proceed with its original proposal to bury up to 4,000 miles of utility lines.
  - The cost of the original proposal was estimated at $2.0 billion, or approximately $500,000 per mile.
  - The authorization covers "tap lines" that have a 10-year average of nine or more unplanned outages per mile.
  - Tap lines are smaller power lines that connect large distribution lines to the lines that lead to a house or business.
- Underground utility lines may increase the cost of, and time required for, routine maintenance due to the excavation required in addition to the repair itself.
- Underground utility lines may also be subject to other stresses, such as damage by ground water.
- The requested resolution is to initiate and amendment to the City's zoning ordinance that will require the planning Commission to review the requirement of underground utility lines, instead of suspended overhead.

FISCAL IMPACT STATEMENT

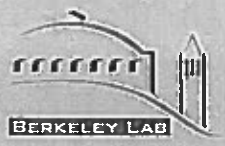
Fiscal Impact	Yes ☐	No ☒
Budget Amendment Required	Yes ☐	No ☒

Estimated Cost or Revenue Impact

There is no revenue or budget impact for the required review by the Planning Commission. Any increased costs of moving utility lines underground, would be borne by Dominion Virginia Power and its rate payers,

Attachment/s Yes ☒ No ☐

LBNL-2132E



ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

Estimated Value of Service Reliability for Electric Utility Customers in the United States

Prepared for
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy

Principle Authors
Michael J. Sullivan, Ph.D., Matthew Mercurio, Ph.D., Josh Schellenberg, M.A
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Environmental Energy Technologies Division

June 2009

http://eetd.lbl.gov/ea/EMS/EMS_pubs.html

The work described in this report was coordinated by the Consortium for Electric Reliability, Technology Solutions and was funded under the Office of Electricity Delivery and Energy Reliability, Transmission Reliability Program, of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231. The authors are solely responsible for any omissions or errors contained herein.

Table ES-3 displays estimated utility customer interruption costs by customer type, for interruptions occurring during different seasons and days of the week. Average interruption costs vary by season and by time of day for each customer type. Interruptions in winter are generally less costly than interruptions occurring in summer. Interruptions are between 30% and 70% less costly on weekends than they are on weekdays for business customers. For residential customers, weekend interruptions are about 15% more costly than weekday interruptions. The difference between weekday and weekend interruption costs increases with interruption duration for both businesses and residential customers.

Table ES- 3. Estimated Average Electric Customer Interruption Costs Per Event US 2008$ by Customer Type, Duration, Season and Day Type

	Outage Duration				
Outage Cost	Momentary	30 minutes	1 hour	4 hours	8 hours
Medium and Large C&I					
Summer Weekday	$11,756	$15,709	$20,360	$59,188	$93,890
Summer Weekend	$8,363	$11,318	$14,828	$44,656	$71,228
Winter Weekday	$9,306	$12,963	$17,411	$57,097	$92,361
Winter Weekend	$6,347	$8,977	$12,220	$42,025	$68,543
Small C&I					
Summer Weekday	$439	$610	$818	$2,696	$4,768
Summer Weekend	$265	$378	$519	$1,866	$3,414
Winter Weekday	$592	$846	$1,164	$4,223	$7,753
Winter Weekend	$343	$504	$711	$2,846	$5,443
Residential					
Summer Weekday	$2.7	$3.3	$3.9	$7.8	$10.7
Summer Weekend	$3.2	$3.9	$4.6	$9.1	$12.6
Winter Weekday	$1.7	$2.1	$2.6	$6.0	$8.5
Winter Weekend	$2.0	$2.5	$3.1	$7.1	$10.0

Table ES-4 displays the interruption cost per event for summer afternoon interruptions for non-residential customers of different business types. This table illustrates the wide variation in interruption costs that occur for different business types within medium and large and small firms. For medium to large sized firms, interruptions of one hour duration range in cost from about $8,000 for agricultural firms to about $47,000 thousand for manufacturing firms – a factor of almost 6. For small commercial and industrial customers, interruption costs vary from a low of about $461 per event for Public Administration to about $1,900 for Construction – a factor of about 4.

State Corporation Commission
2017 Fiscal Impact Statement

1. **Bill Number:** SB1473

House of Origin	☐	Introduced	☐	Substitute	☐	Engrossed
Second House	☐	In Committee	☐	Substitute	☒	Enrolled

2. **Patron:** Saslaw

3. **Committee:** Passed Both Houses

4. **Title:** Electric utilities; undergrounding distribution lines.

5. **Summary:** Electric utilities; undergrounding distribution lines. Declares that the replacement of any subset of an investor-owned electric utility's existing overhead distribution tap lines that have, in the aggregate, an average of nine or more total unplanned outage events-per-mile over a preceding 10-year period with new underground facilities in order to improve electric service reliability is in the public interest. The measure also provides that there shall be a rebuttable presumption that (i) the conversion of such facilities will provide local and system-wide benefits, (ii) the new underground facilities are cost beneficial, and (iii) the costs associated with the new underground facilities are reasonably and prudently incurred. An enactment clause provides that the measure shall apply to any applications pending with the Commission regarding new underground facilities on or after January 1, 2017. Another enactment clause directs an investor-owned incumbent electric utility to provide written notice to any cable operator of a cable television system that has attached its facilities to its poles that will be replaced in a project to underground existing overhead distribution tap lines not less than 90 days prior to relocating the utility's overhead distribution lines. The clause also establishes a procedure for negotiating a common shared underground easement.

6. **Budget Amendment Necessary**: No

7. **Fiscal Impact Estimates:** No fiscal impact on the State Corporation Commission

8. **Fiscal Implications:** None on the State Corporation Commission

9. **Specific Agency or Political Subdivisions Affected:** State Corporation Commission

10. **Technical Amendment Necessary:** No

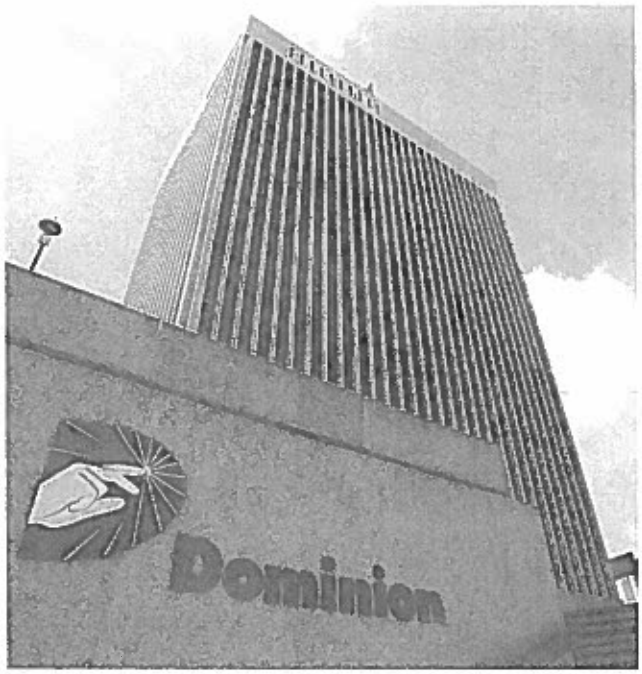
11. **Other Comments:** No

GLA 2/23/17

http://www.richmond.com/news/virginia/dominion-backed-bill-on-burying-power-lines-sails-through-senate/article_ef02c23b-ffa6-5911-9b7f-8bf59816c361.html

Dominion-backed bill on burying power lines sails through Senate committee

By ROBERT ZULLO Richmond Times-Dispatch Feb 1, 2017



The Dominion Virginia Power building at Seventh and East Cary streets in downtown Richmond.
TIMES-DISPATCH

About a year and a half ago, the State Corporation Commission put the brakes on a Dominion Virginia Power plan to bury 526 miles of distribution lines and recoup about $700 million from customers over 40 years.

The commission, charged with regulating utilities, found that Dominion Virginia Power failed to demonstrate that its "strategic underground program" was cost-effective "based on any reasonable criteria" or that it was "reasonable, prudent and in the public interest."

But legislation that sailed through the Senate Commerce and Labor Committee Monday on a 14-0 vote and now heads to the full Senate may help the commission make up its mind in the future about the merits of similar projects.

SB 1473 by Sen. Richard L. Saslaw, D-Fairfax, would declare that moving underground any investor-owned electric utility's overhead "tap lines," which are smaller lines that generally connect main feeders to the wires that go to individual homes or businesses, to improve reliability "is in the public interest."

Saslaw's bill would apply to lines that have a 10-year average of nine or more "unplanned outage events-per mile." Dominion Virginia Power says it has about 4,000 miles of lines that meet that criteria in its 20,000 miles of tap lines.

In the original draft of his bill, Saslaw also directed the commission to presume in deciding whether to allow utilities to charge customers for the cost from burying lines that such projects "will provide local and system-wide benefits" and that the new facilities are cost-beneficial and the associated expenses are "reasonably and prudently incurred."

However, an amendment now makes that presumption "rebuttable."

Ken Schrad, a spokesman for the State Corporation Commission, said the commission typically takes no position on proposed legislation.

"It's a public-policy finding by the General Assembly that a program like this is in the public interest rather than leaving that to the commission," he said. "But there's that caveat language in there that seems to give the commission an ability to analyze the facts."

Dominion Virginia Power spokesman David Botkins said the legislation is not an attempt to circumvent the commission's ruling.

"Clearly, it doesn't do that," Botkins said. "The SCC retains the ultimate authority as they review and approve and deny every application going forward."

In its 2015 decision, the commission also raised the specter of the latter portions of the 10-year plan, which would cost Dominion Virginia Power about $2 billion to bury about 4,000 miles of lines, though it would ultimately recover $6 billion from customers over the life of the underground lines.

"Requiring customers to pay for an undergrounding program at this level of expense is unprecedented in Virginia or elsewhere," the commission wrote.

Last year, the commission approved a scaled-down, pilot version of the underground program, involving 400 miles of overhead tap lines at a cost of about $140 million that added about 50 cents to the monthly bill of a typical residential customer.

At the time, it stressed that "approval of this initial pilot-type project does not predetermine approval of any other investment in the strategic underground program," adding that "detailed evidence demonstrating both the local and system-wide benefits — and establishing that the SUP is and will be cost effective on both a local and system-wide basis — will be paramount in any future SUP proceeding."

Alan Bradshaw, Dominion's director of the underground program, says Saslaw's bill wouldn't change the $175 million cap per year imposed on undergrounding by the SCC and still requires the utility to file an application every year.

"Our focus area is not how many customers we underground," he said, adding that by putting damage-prone lines underground, Dominion's Virginia Power's storm response will be swifter. "What we're looking to do is eliminate work."

Saslaw, who received $25,000 in campaign contributions from Dominion last year, and has hauled in $298,008 from the utility since the late 1990s, said he got a "standing ovation" from a Fairfax civic association about the bill, which he said would save the company money and time.

"Best bill ever," he said. "The greatest bill in the history of the Virginia General Assembly."

Calling attention to how much influence Dominion, the state's largest utility and the largest corporate spender in Virginia politics, wields at the assembly has been de rigueur during this legislative session, uniting politicians across the ideological divide.

Denver Riggleman, a former Air Force officer and businessman and outsider challenger for the GOP gubernatorial nomination, blasted the utility and Appalachian Power on Tuesday outside the Capitol, calling out lawmakers for killing a bill by Sen. Chap Petersen, D-Fairfax City, that would have resumed SCC reviews of utility rates that were frozen by the General Assembly in 2015. Riggleman also criticized Dominion's proposed Atlantic Coast Pipeline and any potential use of eminent domain to help it get built.

"Money does drive votes," he said.

In the wake of his bill's defeat, Petersen attempted to introduce late legislation that would have barred people seeking statewide office from accepting donations from public service corporations, saying Dominion and Appalachian "have an undue influence on the political process," though he withdrew it after senators objected.

And Corey Stewart, chairman of the Prince William Board of County Supervisors and another Republican gubernatorial candidate, took aim at opponent Ed Gillespie and legislation that passed the House last week and is advancing in the Senate that allows facilities for certain electric transmission lines, such as switching stations, to bypass local planning and zoning approvals.

"This legislation is an abomination of public policy, and everyone involved should be ashamed," Stewart said.

Staff Writer Patrick Wilson contributed.

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GENERAL-ASSEMBLY
FEATURED
PHOTOS: This week at the General Assembly
Feb 3, 2017

Isn't it better to just bury power lines? That may depend on where you live

By Darran Simon, CNN

Updated 5:08 PM ET, Thu September 14, 2017

Source: CNN

Irma leaves millions in Florida without power 01:53

Story highlights

Putting power lines underground can reduce the risk of wind, ice and attack

But buried lines are expensive, vulnerable to flooding and harder to repair

(CNN) — Millions of people could be in the dark for days after Hurricane Irma toppled overhead power lines. The delay raises the question of whether an underground electrical grid would have better weathered the storm -- and helped get life back to normal quicker.

Burying power cables, or "undergrounding," makes lines impervious to damage from wind and ice, and harder for would-be attackers to target. But it also can be expensive, complicate repairs and subject infrastructure to flood damage, experts say.

"You can't say undergrounding is all good or undergrounding is all bad," said Theodore Kury, director of energy studies at the University of Florida's Public Utility Research Center. "It's something that needs to be looked at on a case-by-case basis."

Undergrounding entails digging trenches, laying power lines in insulated conduits, then burying them. It's the norm in many downtown areas, and other communities in Europe and the United States have done it; many more have studied it.

In some places, residents and public officials think it's the wise thing to do.

Related Article: What 10 days without power will look like -- and what to do

After years of extensive power outages owing to bad weather, including Superstorm Sandy, municipal leaders in Washington hatched a plan to bury power lines that carry heavy loads, said Travis Smith, an attorney with Office of the People's Counsel, a utilities consumer advocate in the district.

The effort, now enshrined in law, targets the 30 worst-performing electrical distribution lines, he said.

"There is going to be an immediate and significant improvement in the resiliency of the system of those particular lines," Smith said. "They will be able to better withstand calamitous weather in the future, so you won't have to worry about wind or rain or ice or snow."

Kury took a similar view: "If you're more concerned with wind events and flying debris, it may make more sense to bury lines."

.. but it can be pricey.

But getting that done isn't cheap. The industry rule of thumb holds that burying lines costs at least $1 million per mile -- perhaps much more, depending on location -- or at least five times the cost of overhead lines.

"It's very handy to say, 'Let the utility pay for it.' But what people forget is that utilities don't pay for anything," Kury said. "It's the customers that pay for the expenses."

FL power executive on when lights will come back on 02:55

It's incumbent upon utilities and regulators "to make sure when we are asking customers to shoulder an expense, it is providing commensurate benefits," he said.

Washington's plan, pared back from its initial goal and now estimated at $500 million, would cost the average residential customer an additional $1.17 per month, Smith said.

After a 2002 snow storm left about 2 million customers in North Carolina without electricity, a disaster preparedness task force studied the option of undergrounding the state's entire power distribution system.

Replacing overhead lines, the task force found, would take a quarter century and $41 billion, increasing average residential customer bills by 125%. Though less likely to fail in a snowstorm, routine repairs to buried lines would take as much as 60% longer, since problem areas are harder to find and the work requires digging equipment.

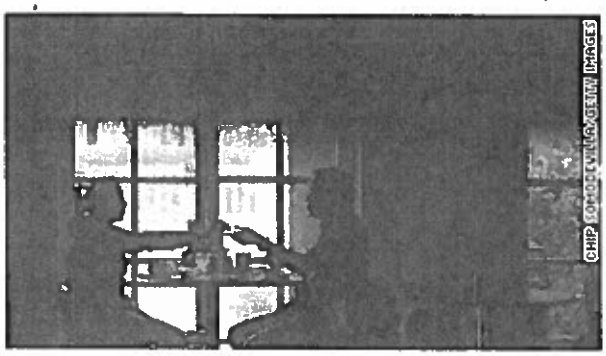
Ultimately, the task force opposed converting the state's entire system but urged utilities to research isolated pockets where undergrounding might be cost effective.

Buried lines can pose a flood risk ...

Besides their price tag, buried lines aren't always the best fix in places prone to flooding, including coastal zones threatened by storm surge.

Subsurface flooding, particularly by saltwater, can damage underground lines, according to Entergy Corporation, which provides power service in Arkansas, Louisiana, Mississippi and Texas.

prone to
ury, who calls



"If you're primarily concerned with storm surge and flooding, then it may very well make sense to keep the wires above ground," he said.

Indeed, about 60% of the electrical system for Florida Power & Light, the nation's third largest utility, is located above ground. The provider serves more than a dozen coastal counties, wrapping the state from the Georgia line to Tampa.

Related Article: Power outages: Post-Irma recovery includes turning on the lights

... but they also can impede attacks.

Extreme weather may not be the only impetus for burying power lines, said Roger N. Anderson, a senior research scientist at Columbia University's Center for Computational Learning Systems.

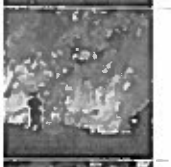
"The country is at high risk, not just from hurricanes but also from terrorism," said Anderson, who has worked with Con Edison to create smart grid systems meant to detect electrical problems before they balloon.

Much of the nation's critical infrastructure, including water, sewage and natural gas lines, already are underground, and the location serves as a key protection against attack, he said. Keeping life as stable as possible is the goal, he said, even when disaster strikes.

"We worry in the homeland security world about anything that lasts more than 72 hours," Anderson said. "That's when the food spoils in the refrigerator and freezer and people start getting desperate."

Travel tips: 10 ways to capture Hong Kong street life like a pro

California wildfires now larger than New York City and Boston combined



California fires: Crews near Ventura have 'very successful day'

Two senators call for Trump's resignation over sexual assault, harassment allegations