PROPOSAL FOR UNDERGROUNDING

A bold vision for storm resiliency and City beautification by undergrounding overhead utility lines in Jacksonville's neighborhoods

Scenic Jacksonville

September 2018

Introduction

This paper sets forth a plan for converting the vast majority of Jacksonville's overhead electric and communication utilities (JEA, AT&T, Comcast, and others) to underground. It proposes a change in JEA's charter and the City's ordinance code, and other measures, to underground substantially all residential overhead utilities over a 30-year program period.

The desirability, functionality, and benefits of undergrounding are many: vast reduction in storm-related outages, elimination of costly and often ugly tree-trimming, reduction of costly business and workforce interruptions, prevention of pole-related vehicular crashes, lessening personal income losses, higher property values, reducing loss of perishable household goods, greatly improving system resiliency and perhaps most important, neighborhood beautification.

Moreover, the feasibility and cost of undergrounding have vastly improved in recent years using directional drilling, which is far less disruptive than prior methods. Those prior methods are considered prohibitively expensive as they require open trenching, road and driveway restoration, disruptions of irrigation and other installed systems, and landscaping replacement. Directional drilling requires digging only at connection points.

Of JEA's approximately 6,000 miles of distribution lines, roughly one-half or about 3,000 miles are on overhead poles. The half which is underground reflects (a) nearly 100 years of rather scattered and episodic undertakings in the central business district and certain neighborhoods and (b) the 1970's zoning ordinance which requires that all new subdivisions be built with all utility lines underground. The plan herein seeks to make underground utilities uniform throughout our city, with a fair and thoughtful approach to cost sharing.

It is not contemplated, nor is it feasible, that most high-voltage transmission lines be undergrounded except where they are located on residential streets. Transmission lines are 69 kV or higher, are generally mounted on large steel or concrete towers almost entirely located on rights-of-way separate from public streets and roads.

Two Methodologies

This paper envisions two approaches to planning and financing a proposed 30-year program. The first, referred to as the "Matrix" method would be the more prevalent and systematic method of implementation throughout the city. The second, referred to as the "Ordinance" approach, provides for undergrounding neighborhoods whose residents wish

to voluntarily proceed with undergrounding ahead of the JEA-led matrix. Each is further described below.

Matrix Approach. Under this method, JEA would be authorized and required to identify and prioritize undergrounding projects using a matrix based upon frequency of outages, percentage of tree cover, historic corridors and scenic areas, vulnerability to vehicular accidents, equity among neighborhoods, and other objective considerations. These projects would be scheduled to take place at a uniform rate over 30 years and would be funded in accordance with the "Sources of Funds" outlined on Page 5 below.

Ordinance Approach. This method would be based upon the existing, but rarely used, city ordinance 714.301 which authorizes voluntary user-paid undergrounding. This ordinance would be modified to make it more user-friendly and less costly to encourage neighborhoods to voluntarily install undergrounding. These projects will relieve pressure on JEA's matrix approach.

In all cases, it is contemplated that AT&T, Comcast and other communication utilities would place their pole-mounted cables underground at their own expense. This expectation derives from three factors: pole rental agreements which require them to remove cables from poles abandoned by JEA, their ongoing efforts to harden and increase capacity and reliability of their lines, and their very commendable push toward superior customer, neighborhood, and community relations.

Both approaches should be made binding upon any successor in ownership of JEA.

Program Costs

The current cost of undergrounding overhead utilities averages, with surprisingly uniformity, $1 million per mile in 2018 dollars. Although there will certainly be variations dependent upon density and existing conditions, it has been proven to be a sound working number not only in JEA's recent experience, but that of other urban utilities in this region of the U. S. Using this number, the total cost of Jacksonville undergrounding is assumed to be $3.0 billion over 30 years (again in 2018 dollars).

The "Sources of Funds" chart on Page 5 sets forth proposed financial resources for this undertaking. While not perfect, and certainly subject to further refinement, analysis and debate, it seeks to be a fair, reasonable, and thoughtful starting point for allocating costs to JEA, the city's general fund, ratepayers, and external governmental grant makers. Although not specifically detailed, it includes adjustments for low-use and low-income ratepayers, multifamily but individually-metered apartment dwellers, and those who have already paid (directly or indirectly) to have their utilities placed underground.

The great majority of overhead-served JEA customers have overhead secondary service drops from the nearest JEA pole to their residences. Those desiring to place their service connection underground would do so at their expense, with JEA facilitation and cooperation. Otherwise they would have the option to retain that connection as inconspicuously as possible from a small "riser" pole set by JEA at the road right-of-way line (with the option of later undergrounding). Attractive and modern LED street light replacements will enhance neighborhood safety and beauty.

Implementation

It is anticipated that this plan would be implemented by action of the Jacksonville City Council, with input and collaboration from JEA, interested civic and professional groups, and the public at large. The result would be an ordinance providing:

1) The City of Jacksonville directs the JEA to develop a long-term plan to place, where it will not be entirely cost-prohibitive and will result in beneficial hardening of and otherwise improving the electric grid, all distribution lines underground, and to coordinate with Comcast, AT&T and others the placement of their overhead lines underground.

2) The JEA shall develop such a plan by the end of the current year, December 31, 2018, and submit same to City Council for review and comment.

3) City Ordinance 714.301 shall be revised to (a) more widely publicize and market the existence of this process (b) eliminate the application fee, (c) require JEA to be more fully supportive, including outreach to achieve the required neighborhood participation, and (4) provide that the individual assessments may be spread over 20 years without interest.

Conclusion

When implemented, this program will make Jacksonville one of the most beautiful cities in the country, if not *the* most beautiful. It will vastly improve service reliability particularly during hurricanes and will reduce the cost of outages for businesses, workers and residents overall. It will improve vehicular traffic safety and will enhance residential property values. And, all of this can be done in a fashion which fairly and reasonably allocates costs among the various stakeholders.

Among the public policy debates currently taking place in our community undergrounding of utilities is rapidly rising to the top. This paper sets forth a clear and compelling case, and a fair and reasonable plan, for effecting this highly desirable community wide goal.

Sources of Funds	**Program Total (millions)**
1. JEA Avoided Costs	
a. General maintenance of UG vs. OH distribution lines $10M/yr [1]	$ 150
b. "Hardening" older OH lines to current standards[2]	$ 175
c. Storm recovery costs[3]	$ 140
d. Tree trimming costs - $4M/year[4]	$ 60
e. Lost profit margin during outages[5]	$ 60
f. Cost of converting 4kV lines to 26kV[6]	$ 20
Total	$ 605
2. JEA Contribution	
From operations and reserves, debt restructuring, SJRPP closure, asset sales,	$ 750
other - $25M/year	
3. City of Jacksonville [7] **$20M/year - Benefits**	$ 600
a. Neighborhood beautification	
b. Tree canopy enhancement and avoided maintenance costs	
c. Offset to employee and business lost income during storms	
d. Other business enhancement value	
e. Reduced loss and spoilage of household goods	
f. Avoidance of pole-related vehicular accidents	
4. Customer billed Resiliency fee for duration of program [8]	
a. OH Residential customers billed $.00348/kwh on consumption > 1,000 kwh/month	$ 174
b. UG Residential customers billed $.00174/kwh on consumption > 1,000 kwh/month	$ 73
b. Commercial customers billed $.00116/kwh on all consumption	$ 408
Total	$ 655
5. Grants/Other	
a. CDBG, FDOT, other - $10M/year or $300M over program	$ 300
b. Estimate of "Ordinance Approach" projects $3M annually	$ 90
Total	$ 390
Program Total	$ 3,000

1. Cost declines by 1/30 per year in 2018 dollars.

2. Current hardening cost is approximately 50 miles/year at $0.3M/mile; continue at declining rate over 15 years, thereafter none.

3. Major storm recovery cost is ~$20M/occurrence per JEA 5/25/17. Assume 10 major storms in 30 years plus routine storm recovery cost @ $2M/year, declining 1/30 per year.

4. Per JEA 5/25/17, cost is $4M/year, declining 1/30 per year.

5. Estimate 40% of all OH customers experience OH-related outage of 5 hours/year; JEA margin is 6¢/kwh; declining 1/30 per year.

6. Cost per mile is $0.35M, per JEA 5/25/17. There are 61 miles yet to be converted.

7 Equates to approximately 1/3 mil of COJ rate.

8 Approximately 188,744 of 409,690 residential customers use more than 1,000 kwh/mo.

Scenic Jacksonville Committee on Undergrounding:
John Corse, Bruce Fouraker, Alicia Grant, William Harrell, Preston Haskell, Michael Kirwan, City Councilman Jim Love, Jim Overton