

# Undergrounding Power Lines

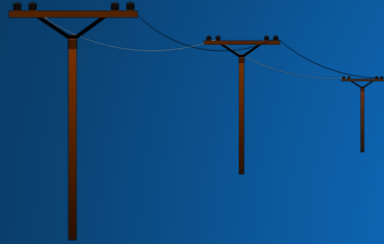
Commissioner Nelly Velasquez | July 14, 2020

# Undergrounding Considerations

1. Aesthetics
2. Resilience & Sustainability
3. Reliability
4. Safety
5. Costs & Payment



# Aesthetics



Removes overhead lines, unsightly and damaged poles



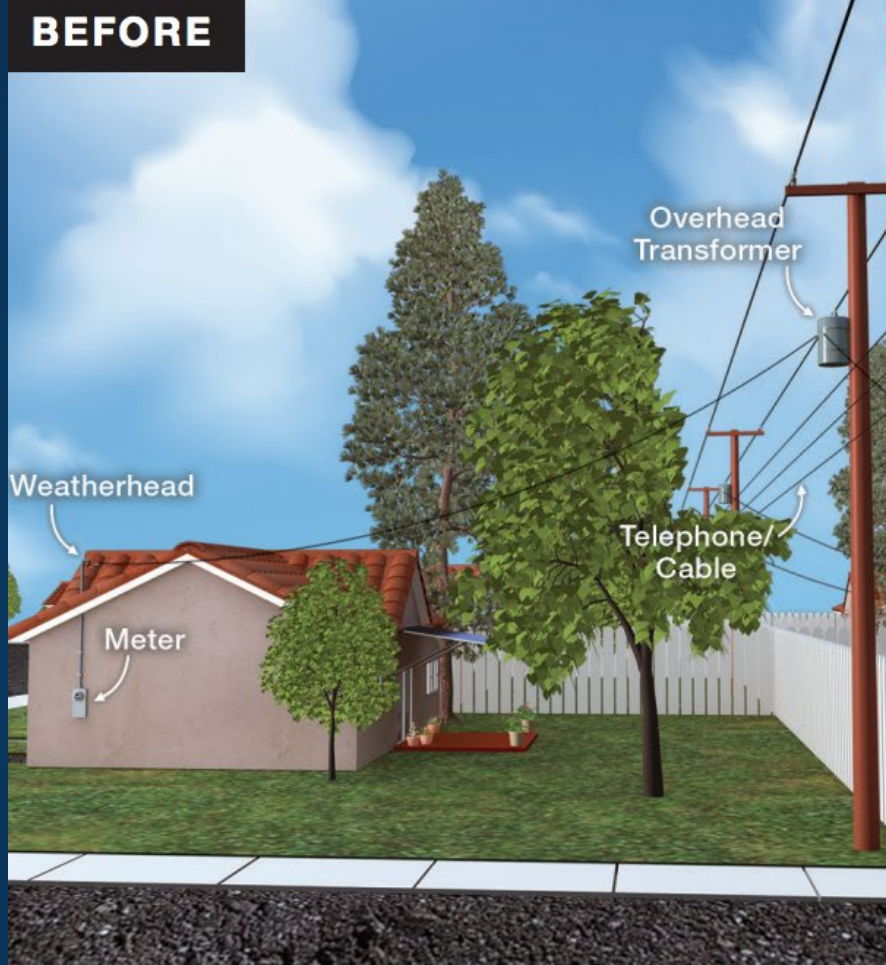
Reduces the need for tree trimming by residents, FPL



Transformer boxes will still be visible.

- Not all properties will have a box in front.
- Boxes could be landscaped or decorated with art but must be accessible from the street.
- Concrete pads can be used to raise the boxes in flood-prone areas.

**BEFORE**



**AFTER**

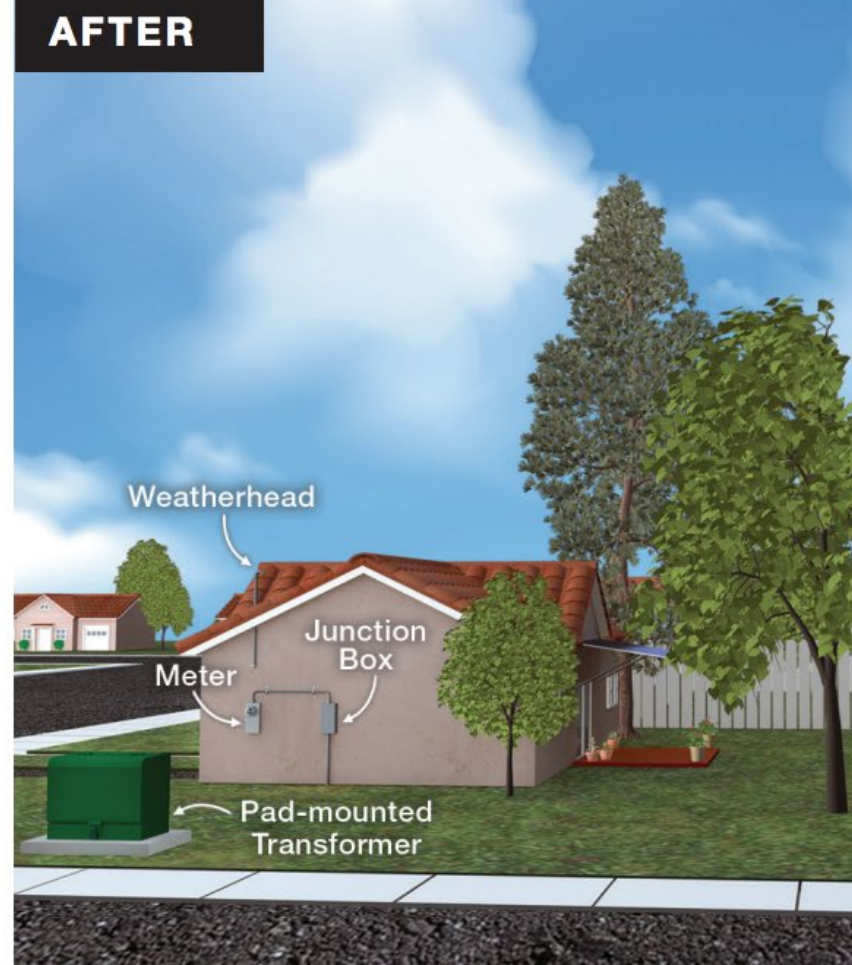


Photo Source: FPL

[https://www.fpl.com/content/dam/fpl/us/en/reliability/pdf/SSUP%20Sept%202019%20Understanding%20Undergrounding%20final\\_English.pdf](https://www.fpl.com/content/dam/fpl/us/en/reliability/pdf/SSUP%20Sept%202019%20Understanding%20Undergrounding%20final_English.pdf)



# Resilience & Sustainability

**Resilience:** How a community prepares for, and recovers from, changing conditions and emergencies.



- Undergrounding power lines:*
- *Would help protect the Town from high winds during tropical storms and hurricanes*
  - *Provides long-term protection from this particular risk*
  - *Helps safeguard the FEMA community lifelines of energy, communications, safety and security*

**Sustainability:** How a community manages resources to meet current needs AND future ones.



- *Investment today in undergrounding yields wind risk reduction benefits well into the future*
- *Grants and credits can help offset construction costs*
- *GO bond (if needed) will spread payments out over time*

Definition source: Institute for Sustainable Communities

# Tree Canopy and Walkability

- Increasing the tree canopy to create shade for walkability has been a long-term goal for the Town
- Increased shade and green trees lessen the heat island effect
- Trees are natural vertical storm water management features to help mitigate road flooding



# Reliability of Underground vs. Overhead

## Comparison of performance during Hurricane Irma:

### Overhead system:

- 89% of the overhead feeders and 24% percent of the overhead laterals experienced damage

### Underground system:

- 30% of the underground feeders and 4% of the underground laterals experienced damage

Up to an 80% reduction in average **number of interruptions** per year

Up to an 80% reduction in average **outage duration** per year

# Reliability, cont'd

According to FPL, in 2016, during Hurricane Matthew:

- Only **2.2 percent** of FPL's underground facilities experienced outages
- **9.4 percent** of hardened overhead facilities experienced outages
- **13.8 percent** of non-hardened overhead facilities experienced outages



Source: Florida Public Service Commission document, "In re: Petition for determination under Rule 25- 6.115, F.A.C., and approval of associated revised tariff sheet 6.300, by Florida Power & Light Company." January 22, 2018.



# Power Restoration

- In flood-prone areas, the transformer could be placed on two six-inch concrete pads to prevent water entering
- The switch cabinets are stainless steel and made in a way where they'll still work even if they get wet
- When there's flooding, FPL must wait for the water to recede to make repairs, regardless of undergrounding or overhead lines
- When there's an outage and lines are underground, they only have to send one person out for a few hours to troubleshoot the switch cabinets
  - With underground lines, one worker can have power at 5000 houses back up in a few hours
  - With overhead lines, they have to send out many more workers to make repairs



# Safety

Fewer poles that drivers might collide with in a vehicle accident

Fewer leaning power poles that may fall on houses

Fewer power lines and poles that may be brought down by high winds or lightning

Reduced risk of electrocution from live wires above ground making contact with water

# Wires + Water = Major Safety Risk

- After Hurricane Sandy in 2012, the Breezy Point neighborhood was engulfed by a massive fire.
- According to fire marshals and news reports, the cause was contact between power lines and sea water.
- Because of flooding and storm surge, firefighters struggled to reach the blaze.
- More than 100 properties were destroyed.





## Estimated cost: Approximately \$16 million

\*Cost may have changed from this initial estimate

\*\*Cost may not reflect all possible credits, grants, proffers

See June 11, 2013 agenda packet for additional details: [https://www.townofsursidefl.gov/docs/default-source/default-document-library/town-clerk-documents/commission-agendas/2013-commission-agendas/06-11-2013agenda-packet.pdf?sfvrsn=77294494\\_7](https://www.townofsursidefl.gov/docs/default-source/default-document-library/town-clerk-documents/commission-agendas/2013-commission-agendas/06-11-2013agenda-packet.pdf?sfvrsn=77294494_7)



# Options to cover costs:

- **Grants:** FEMA, Florida Power & Light or other sources
- **Credits** from FPL (see next slide for details)
- **Voluntary proffers** have been looked at in the past (see June 11, 2013 agenda packet)
- **General obligation (GO) bond** (for any remaining costs):
  - Payable in 20 or 30 years with the excess of the annual tax revenue that would otherwise go into the Town's reserves. No need to raise the millage rate.
  - To pay bond in less than 20 years, millage rate would be raised to no more than 4.8. Would provide an additional \$1,180,000 annually to pay off bond sooner.





# More information about possible credits/cost reductions:

- **Contribution-in-Aid-of-Construction (CIAC):** The CIAC is how much a person, corporation or entity has to contribute to undergrounding. Because of a Public Service Commission decision on January 22, 2018, existing non-storm-hardened facilities costs are excluded from CIAC costs. (Those costs are now covered by all FPL ratepayers instead of by the entity that's applying for undergrounding.)
- **Governmental Adjustment Factor Waiver (GAF):** Allows a 25 percent reduction in CIAC costs for local governments. The GAF was created based on expected savings in post-storm power restoration expenses in areas converted from overhead to underground.

# Costs of Borrowing and Effects of Slight Increase to 4.8 Millage Rate

*Surfside's current millage rate is ##. By raising the millage rate slightly to 4.8, the GO bond could be paid off faster.*

- At the current millage rate, if we borrow **\$16,000,000 for 30 years @ 4%** interest rate = \$916,637.88 yearly payment.
  - If the millage rate is set to 4.8 for an additional payment of \$1,180,000 annually, the GO Bond would be paid off in **10 years**
- At the current millage rate, if we borrow **\$16,000,000 for 20 years @ 4%** interest rate = \$1,163,472 yearly payment
  - Millage rate at 4.8 for an additional payment of \$1,180,000 annually, the GO Bond would be paid off in **8 years**
- At the current millage rate, if we borrow **\$16,000,000 for 10 years @ 4%** interest rate = \$1,943,908.32 yearly payment
  - Millage rate at 4.8 for an additional payment of \$1,180,000 annually, the GO Bond would be paid off in **7 years**