

LIFE RUNS ON ENERGYSM



CONSIDERING UNDERGROUND

Electric Service?

tampaelectric.com



INTRODUCTION

The majority of Tampa Electric's customers receive their electric service through overhead construction, which is the standard type of service established by the Florida Public Service Commission for utilities. Periodically, Tampa Electric is contacted by customers looking for information about new underground electric service, or conversion of their existing overhead electric system to underground.

This brochure provides general guidance for individuals, communities, developers and government representatives to help them decide if underground electric service is the right solution.

This document is not intended to be all-inclusive, and is not a substitute for direct communication with Tampa Electric and other utilities. Detailed information about electrical service requirements is contained in the Tampa Electric Standard Electrical Service Requirements and Tariffs which are available online at **tampaelectric.com**.

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Advantages

OF UNDERGROUND ELECTRIC SERVICE

Aesthetics is the most common reason customers consider underground electric service instead of overhead on poles. Electric conductors that would have been supported by utility poles in the overhead system are replaced by buried cables in conduit.

Underground electric lines typically experience fewer wind- and lightning-related outages than overhead systems.

Underground electric lines also diminish the need to trim the upper limbs of trees. Tree trimming requirements for overhead systems could be reduced, however, by proper selection and placement of new trees.



Underground electric service to a residential building.



Underground electrical conduits in trench.



Overhead electric service to a residential building.



Underground system single phase pad-mounted transformer.



Underground system pad-mounted switchgear.



Overhead system single-phase transformer.



Underground system pad-mounted transformer and junction boxes for communications and TV.



Easements are required for underground electric transformers and switches.

Drawbacks OF UNDERGROUND ELECTRIC SERVICE

Underground electric service is more expensive to install than an equivalent overhead system due to equipment and labor costs.

It is difficult to locate faults in underground lines. Specialized equipment is required to locate faults because visual inspection of the line is not possible. When outages do occur, the service interruptions are longer.

Repairs to underground lines and equipment are more time consuming and costly than for overhead systems. Other underground utilities including natural gas, water, sewer, and communications must be accurately located to avoid damage during the repair process.

In an underground system, electric transformers and switches are installed on concrete pads near the customer loads being served. Easements are required to provide adequate clearance to install, operate and maintain the equipment.

Underground electric systems do not guarantee protection from damage by hurricanes and other storms. Uprooted trees, flying debris, flooding and tidal surges can cause severe damage to the underground system. In flooded areas, storm damage restoration efforts must be delayed until the water has receded.

Interference with tree roots during installation and repair of underground lines can also occur. Trees should not be planted in the vicinity of underground power lines to avoid interference with, and damage to, the buried cables.

How to Get Started

Contacting Tampa Electric early in the design stage is essential to ensure engineering, material procurement and job scheduling may be performed in a manner conducive to providing timely service. Availability of electric service and determination by Tampa Electric of the designated point of delivery should be made prior to the design stage.

Via Phone

Call **(813) 635-1500** to speak with a Tampa Electric representative.

Via Web

For both residential and commercial projects, go to **tampaelectric.com**, select “*Business*”, then select “*New Construction*”, followed by “*Request Service*”. Review the step-by-step procedures and then select and complete the appropriate online service request form.

Detailed information about the types of service available is contained in the Tampa Electric Standard Electrical Service Requirements and Tariffs which are available online at **tampaelectric.com**. This Web site also provides access to step-by-step project procedures. The purpose of the procedures is to provide a general process guideline for the different types of service Tampa Electric provides. Since each construction project is unique, it is important that you communicate regularly with your Tampa Electric representative. This will ensure that there is a clear understanding of the schedule, and that you understand Tampa Electric’s requirements.





Cost OF UNDERGROUND ELECTRIC SERVICE

Underground electric service is more expensive to install than an equivalent overhead system. The Florida Public Service Commission recognizes overhead as the standard service provided by utilities. When overhead service would otherwise be provided, requests for underground service may be granted as long as the applicant pays the cost differential between the underground system and the equivalent overhead system.

The cost to provide underground electric service is dependent upon the scope and site conditions of each project. A Tampa Electric representative can provide a non-binding “ballpark” estimate to help applicants identify the magnitude of the cost to install a new underground distribution system or convert an existing overhead system to underground. Applicants who decide to proceed with the project can also obtain a binding estimate by submitting a non-refundable deposit to Tampa Electric. The estimate is valid for 180 days, and the deposit can be used to reduce the applicant’s portion of the construction cost if the applicant enters into a contract with Tampa Electric for the project within 180 days from the date the estimate was received.

To reduce the project cost, the applicant may perform the trenching, backfilling and installation of the underground conduit, if mutually agreed to in advance by both parties. Tampa Electric will provide a credit to the applicant to compensate for this work. The credit will not exceed the applicant’s cost.

For other policies that may apply, refer to the Tampa Electric Standard Electrical Service Requirements and Tariffs which are available online at tampaelectric.com.

Conversion of Existing OVERHEAD SERVICE

Occasionally, Tampa Electric receives inquiries from municipalities and other organizations considering conversion of existing overhead electric service to underground. Conversion projects require construction of a new underground electrical system prior to removal of the existing overhead system.

Since the cost for the project will depend on the existing project site conditions, a detailed field survey is often required before a cost estimate can be produced. A field survey for a large project can take a significant amount of time and effort. A Tampa Electric representative can review the schedule and determine any deposits required to provide a cost estimate for the requested modifications to the electric system.

The cost for conversion of the overhead system to underground includes:

- The estimated cost differential between the new underground system and the equivalent overhead system.
- The cost to remove the existing overhead system.
- The estimated remaining net book value minus the net salvage value of the existing overhead system to be removed.

For other policies that may apply, refer to the Tampa Electric Standard Electrical Service Requirements and Tariffs which are available online at tampaelectric.com.

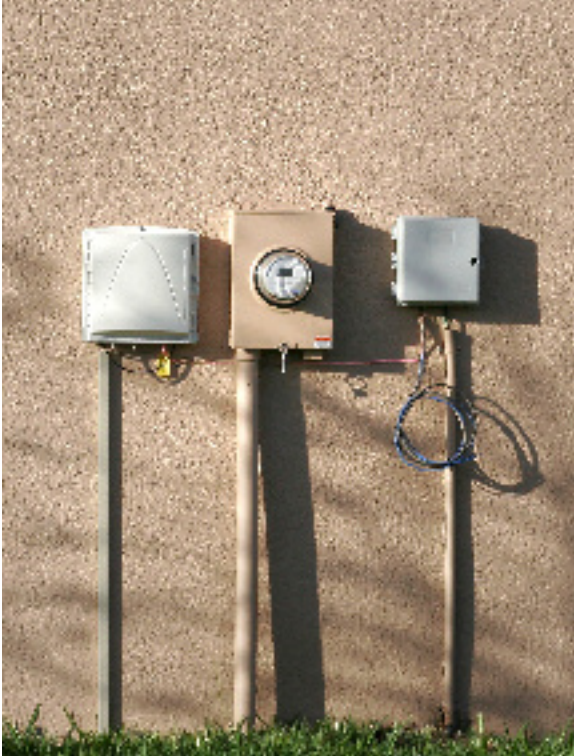
Electric utility poles used for overhead electric service may also support communications, security, cable TV, and traffic control signal cables owned and controlled by other utilities and service providers. The cost to move these facilities is determined by the other entities and is not included in the estimate provided by Tampa Electric.



Overhead poles often support third party facilities such as traffic signals.



Overhead system service entrance.



Underground system service entrance.

Conversion of Existing

OVERHEAD SERVICE *continued*

Communities and governments interested in converting existing overhead electric systems to underground should appoint an individual to manage the project, contact each of the utilities involved, assist in the determination of costs and coordinate all the activities. Underground conversion projects require detailed coordination with existing buildings, roadways and underground facilities. Other issues that may need to be addressed in conversion projects include: securing easements, traffic control, and road and landscape restoration. This coordination will allow Tampa Electric to effectively support the applicants' requests to modify the electric system.

Before residential and business customers can receive their electric service from the new underground electrical system, they may need to modify or replace the service entrance at their premises. The customer is responsible for costs associated with conversion of their service entrance and any modifications to the interior wiring to meet current electrical code requirements. The modifications should be performed by a licensed electrician, and permitted, inspected and approved by the appropriate local authority.

New Residential

SUBDIVISION

In areas suitable for underground construction, when requested, Tampa Electric will provide underground residential distribution (URD) systems in accordance with its standard practices in new residential subdivisions containing five or more building lots and tracts of land upon which new multiple-occupancy buildings are to be constructed. Your Tampa Electric representative can review costs for installation of the underground facilities.

Developers of new URD subdivisions should contact Tampa Electric before the platting process so easements can be included in the plat. Early notice also enables Tampa Electric to design an efficient URD system and consider preferences the developer may have concerning the location of Tampa Electric facilities.

Tampa Electric will install underground distribution systems up to the point of delivery. The developer will provide and install the service entrance conduit (if applicable), the meter socket and the wiring from the meter socket to the service entrance equipment. The developer may perform the trenching, backfilling and installation of the underground conduit if mutually agreed to in advance by both parties. Tampa Electric will provide a credit to the applicant to compensate for this work. The credit will not exceed the applicant's project cost. For other policies that may apply, refer to the Tampa Electric Standard Electrical Service Requirements and Tariffs which are available online at tampaelectric.com.

The charges for underground service are based upon arrangements that will permit serving the subdivision's underground distribution system from overhead feeder mains. If feeder mains are deemed necessary by Tampa Electric to provide and/or maintain adequate service and are requested to be installed underground by the applicant or a governmental agency, the applicant must pay Tampa Electric the difference between the cost of the underground feeder mains and the cost of equivalent overhead feeder mains.



Underground system junction boxes for electric, communications and TV.



Underground electric service entrance for a residential apartment building.

New Residential

SUBDIVISIONS *continued*

Tariff charges for underground service to new residential subdivisions are based on timely and reasonably full use of the land being developed. When Tampa Electric is requested to construct underground systems through a section of a development where full use of the system may not be realized for at least two years, a deposit may be required to guarantee performance before construction begins.

New Residential Service

OVERHEAD TO UNDERGROUND

In areas suitable for underground construction, when requested, Tampa Electric will install underground service laterals from overhead systems to newly constructed residential buildings.

Your Tampa Electric representative can review costs for installation of the underground facilities. To reduce the project cost, the applicant may perform the trenching, backfilling and installation of the underground conduit if mutually agreed to in advance by both parties. Tampa Electric will provide a credit to the applicant to compensate for this work. The credit will not exceed the applicant's project cost.

New Multiple-Occupancy

RESIDENTIAL BUILDINGS

In areas suitable for underground construction, when requested, Tampa Electric will provide underground distribution facilities in accordance with its standard practices to new condominium, townhouse and apartment buildings containing five or more

New Multiple-Occupancy

RESIDENTIAL BUILDINGS *continued*

individual dwelling units. Typically there will be no contribution required from the applicant for single-phase underground distribution as long as Tampa Electric can construct its facilities in an economical manner.

The applicant is responsible for extending the building service to Tampa Electric's designated point of delivery. The point of delivery will normally be the pad-mounted transformer. If a secondary handhole was required by the design, it will be the designated point of delivery.

If feeder mains are necessary to provide and/or maintain adequate service, and are requested to be installed underground by the applicant or a governmental agency, the applicant must pay Tampa Electric the difference between the cost of the underground feeder mains and the cost of equivalent overhead feeder mains

New Commercial Underground Service

In overhead areas, when the electric service can be provided from an overhead source, Tampa Electric will provide a handhole at the base of the pole. When the electric service cannot be served from an overhead source, a pad-mounted transformer will be provided. The cost of these additional items may be the responsibility of the applicant. The applicant must extend the building service to the transformer or handhole.



Underground service handhole from an overhead pole.



Underground system three-phase pad-mounted transformer.

Outdoor Lighting

Outdoor street and area lighting is often included in the project design. In areas served by overhead electric systems, light fixtures are mounted on the utility poles and powered from overhead transformers. Separate light fixture poles are used to support outdoor lighting fixtures in areas served by underground electric systems. Underground cable installed in conduit is required to provide power to the fixtures. Tampa Electric normally installs the entire outdoor lighting system. To reduce the project cost, the applicant may perform the trenching, backfilling and installation of the underground conduit if mutually agreed to in advance by both parties. Tampa Electric will provide a credit to the applicant to compensate for this work. The credit will not exceed the applicant's project cost.



Overhead system street lighting.



Underground system street lighting.

Alternatives

If, for any reason, the applicant decides underground electric service is not the best solution for their project, there are other alternatives that can be considered to improve the aesthetics of the project.

Communications, security and cable TV companies as well as municipalities attach their cables to poles supporting overhead electric lines. These cables are closer to ground level and often of larger diameter than the electric conductors, so they are more visible.

Relocating the communications cables and other attachments from the pole, and leaving the electric lines overhead, often results in a cleaner appearance at a lower cost than undergrounding the entire electric system. Applicants are encouraged to contact these various service providers to discuss the coordination of construction activities and the fees associated with moving the facilities and cables.

Replacing older wooden poles with concrete poles is also an option that provides a more modern and orderly street appearance. The applicant is responsible for paying the applicable fees for the modifications.



Overhead concrete poles.



Overhead system communications cables supported from electric utility poles.



Overhead system without third party attachments on the electric poles.

Frequently Asked Questions

Q What is the standard type of electric service offered by Tampa Electric?

A The standard type of service offered by Tampa Electric is overhead service. Requests for underground service may be granted provided the applicant pays the cost differential between the underground system and the equivalent overhead system.

Q Why was overhead chosen as the standard type of electric service?

A The Florida Public Service Commission recognizes overhead as the most cost effective type of service provided by utilities. An underground electric system is more expensive to install than an equivalent overhead system due to equipment and labor costs.

Q Does Tampa Electric have any objection to providing underground electric service?

A Tampa Electric has no objection to granting applicants' requests for underground service when possible. Additional installation costs for underground service are the responsibility of the applicant, so it is important for the applicant to understand the advantages and disadvantages of underground service.

Q Why does Tampa Electric require the applicant to pay for conversion of overhead to underground electric service?

A A conversion project requires installation of a second electrical system in the area already served by the existing overhead system. Once installation of the underground system is complete, the existing overhead system must be removed. In order to provide electric service to all customers in the most economical manner, the Florida Public Service Commission and Tampa Electric recognize that the applicant should pay the additional costs associated with the requested conversion.

Q How much does an applicant have to pay to convert an overhead electric system to underground?

A Overhead to underground conversion of an existing electric system is expensive. The costs vary greatly by project, but generally are five to ten times the cost of the overhead system. Conversion of the overhead electric system typically includes the cost to remove the existing overhead lines and equipment, the remaining value of the system that must be removed, and the estimated cost differential between the new underground system and the equivalent overhead system.

Q An overhead to underground conversion project is being proposed for the area where my home or business is located. Who will be responsible for changing my service entrance to accept the new underground service?

A The owner is responsible for modifying the service entrance for their building to accept the new underground service and any costs involved. The modifications should be performed by a licensed electrician, and permitted, inspected and approved by the appropriate local authority. Modifications to the interior wiring of the building may be necessary to meet current electrical code requirements, which would also be the responsibility of the owner.

Frequently Asked Questions continued

Q Who do I contact to move overhead communications and cable TV wiring cables underground?

A Contact each of the utilities to discuss the modifications to their facilities.

Q How do I request new electric service or conversion of my existing service?

A Call **(813) 635-1500** to speak with a Tampa Electric representative or go to **tampaelectric.com**, choose “*Business*”, then select “*New Construction*”, followed by “*Request Service*”.

Q What other information is available on the New Construction Web page?

A The documents posted on the New Construction page include Tampa Electric's Standard Electrical Service Requirements and General Rules & Specifications. The Standard Electrical Service Requirements provide specifications for builders, architects, engineers, electricians and others involved in your project. The General Rules & Specifications provide specifications for overhead and underground construction. Step-by-step procedures are available on the website to provide general process guidelines for requesting service for commercial, residential, and multi-occupancy residential projects.

