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A Builder and Developer’s Guide
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USER GUIDE: This resource is intended to be a dynamic document and will be revised periodically (as needed). Each time you want to access the document, please use the links from within the document to ensure you are referencing the most up-to-date information.
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I. Introduction

To the development community,

We would like to thank you for all that you do to build the healthy and sustainable neighborhoods in which we live and work. Your efforts and investments allow our customer base and business to grow. At Duke Energy, we want to work with you to develop these thriving communities – which is why we’re elevating our commitment to you.

We have learned from our conversations with you and your colleagues that our processes are too complex, that we are not consistently meeting schedule commitments and doing business with us can be difficult. As a result of your valuable feedback, we are simplifying our processes, increasing the expediency of our design and construction timelines, creating technology-forward self-service tools and increasing transparency so that you can get your projects constructed as seamlessly as possible.

The following improvements are being implemented as a result:

- Enhanced tools to exchange information:
  - Builder Portal and app
  - Large file upload
  - Increased access to design teams via email

- Increased consistency across our service territories

- This guide: Working with Duke Energy: A Builder and Developer’s Guide

This guide explains what to expect on a typical project and directs you to additional resources found on duke-energy.com/builders-developers.

Please continue to provide feedback through your Duke Energy contacts or via the Builder Portal or app.

Thank you for your collaboration as we streamline our processes to better serve you and the communities we call home.

Rick Grant

VP Engineering
Customer Delivery
II. General Comments

Duke Energy constantly strives to maintain a high standard of service to all customers. This playbook has been prepared for use by customers, architects, engineers, electrical contractors, company employees and local inspecting authorities so they may receive full benefit from our service. We believe you will find it helpful when planning new residential developments.

A. Safety and the Environment

Below, we have outlined Duke Energy’s commitment to health, safety and the environment. Duke Energy appreciates your collaboration as we work as a team to meet all parties’ obligations to safety and our environment.

Health and Safety

Duke Energy is committed to employee, contractor and public health and safety. Protecting our people enhances the quality of life for our workforce and contributes to Duke Energy’s long-term business success. Through each person’s commitment, ownership and engagement, the company will strive to achieve an injury- and illness-free workplace. The Health and Safety Policy establishes principles to fulfill this commitment. Through them, Duke Energy will:

- Comply with applicable laws and company policies and procedures while also proactively addressing risk and building margin into our planning and operations.
- Be nimble as new risks and opportunities emerge. Act with a sense of urgency while ensuring accuracy in all our responses. Apply lessons learned effectively across the enterprise.
- Set clear expectations, provide support and training, and hold employees accountable for understanding and incorporating health and safety responsibilities into daily work activities. Actively engage the management of our contractors to hold them accountable for compliance with laws and applicable company requirements.
- Provide a safe and healthy workplace and be prepared to respond effectively in the event that incidents occur. Empower all employees to actively identify hazards, prevent and correct unsafe conditions, and demonstrate safe behaviors at every level. Select, manage and partner with contractors to improve health and safety performance.
- Set challenging goals to attain industry-leading performance and continually assess internal performance to improve health and safety management systems, processes and results. Recognize and reward safety excellence.
- Develop and maintain effective public safety programs to educate and inform the public in the communities in which we operate. Interact with key stakeholders to develop responsible laws and regulations that enhance health and safety in the workplace and communities.

Responsibility for Environmental Protection

Duke Energy and the employees working for the company are committed to being good neighbors, which means we respect and honor our role as stewards of our environment. Sustainability is central to everything we do, and responsible management of our natural resources is critical to a cleaner environment, the quality of life in the communities we serve and Duke Energy’s long-term business success.
B. Purpose
The purpose of this playbook is to offer guiding principles for all stages of the process of providing service to new residential developments. Please connect with Duke Energy early in the land development process to begin project initiation.

C. Areas Served
Duke Energy offers energy services to approximately 7.7 million customers in the Carolinas, Florida, Ohio, Kentucky and Indiana, and retail natural gas services to more than 1.6 million customers in the Carolinas, Ohio, Kentucky and Tennessee.

Our fleet of power plants has approximately 51,000 megawatts of generating capacity from a variety of fuel sources such as: hydroelectric, coal, oil, natural gas and nuclear.

In October 2016, Duke Energy acquired Piedmont Natural Gas, which operates as a business unit of the company. Piedmont’s customers are now combined with Duke Energy’s existing customer base, and Tennessee is now one of our state territories.

D. Definitions/Abbreviations

Some definitions/abbreviations may only apply to specific geographic areas.

Company – Hereafter, Duke Energy will be referred to as ‘the company’.

Contribution in Aid of Construction (CIAC) – Any amount of money or property contributed to an electric utility to the extent that the purpose of the contribution is to provide for line extensions for new or expanded customer loads.

Customer – Developer, builder, architect, engineer, licensed electrical contractor, etc.

Inspector or Inspection Authority – A person or agency authorized by a governmental body to inspect and approve electrical installations.

Performance Guarantee Deposit/Idle Facilities – A charge that is based on the cost of the infrastructure Duke Energy installs to serve a neighborhood that may not activate service within a specified time frame. Prorated refunds of this deposit are subject to meter activations within five years.

Service – The supply of energy to the customer, including the readiness and availability of energy, to a standard delivery point.

Tariffs – The applicable rates and electric service rules and regulations under which all energy is delivered and all service is rendered by the company, and that are approved by and/or on file with the state public service commission.

Temporary Service – Service for construction, fairs, displays, exhibits and similar temporary purposes where the company has a source of electricity readily available.

E. Duke Energy Roles/Responsibilities

Engineering Design Associate/Engineering Specialist Assistant (EDA/ESA) – The EDA/ESA assists to collect all project documents and verifies that plans, CAD files, endorsements and other project details are collected from the builder/developer. The EDA/ESA is responsible for creating the work order and entering the initial target dates.

Designers – Primary customer contact. Responsible for validation of service needs, detailed design, work order timeline and overall synchronization of the project from the initial contact through project completion.

Centralized Complex Designer – Responsible for creating preliminary and final work order designs.

Construction Coordinator – Monitors and inspects the site to verify all site-ready requirements have been met. This role is being used in Florida.

Construction Crew(s) – The construction resource hired or contracted by Duke Energy to install electric, natural gas and outdoor lighting facilities within the residential development. This resource may be referred to as ‘contract installer’, ‘Duke Energy construction crews’, ‘the crews’ or ‘Duke Energy crews’.

F. Builder/Developer Responsibilities

• Provide early notification of project and continue to provide updated project status and timelines.

• Assist in easement or permit land rights/use acquisition.
• Delivery of complete and approved final project plans, CAD files, project information forms and endorsements, prior to starting site development.
• Engage assigned designer throughout the process, from initiation to construction completion.
• Prepare and maintain job site to allow access to construction crews during installation of Duke Energy facilities.
• Remit required CIAC payment within 30 days of invoice.
• Participate in pre-construction meetings and job site completion meetings to ensure installation of facilities is as planned.
• Provide survey staking of proposed facilities, grade, sidewalk, easement and building areas.
• Install conduit road crossings at the proper depth, location and length.
• Mark/locate existing facilities on the job site, including water, sewer, storm, irrigation, etc.
• Protect installed Duke Energy facilities from damage due to ongoing site work. This includes erosion control where Duke Energy facilities have been installed.

G. Important Success Factors

Your cooperation with the project is greatly appreciated and will enable you to receive prompt and satisfactory service. Please consider these success factors when planning development projects:
• Provide advance notification for projects. The designer will work with the builder/developer to understand the impacts the new project will have on the system (capacity to serve) and our readiness to serve the project.
• Provide an approved set of final project plans and documentation as requested by Duke Energy.
• Ensure a project schedule is provided to facilitate the sequencing of all utility installations.
• Be mindful if land clearing and mass grading have started before you have received a designer contact or initiated a work order with Duke Energy. This can indicate a disconnect on project timing.
• Remember to budget time and expenses for the Duke Energy system to be installed and any required CIAC.
• Include proper easement space and job site space for Duke Energy facilities and equipment to be installed, operated and maintained. Research the property to ensure existing deeds/right-of-way easements (transmission, natural gas, etc.) are known and conflicts have been identified.
• Maintain frequent communication with Duke Energy (the EDA/ESA, designer, construction coordinator, Duke Energy construction crews, etc.).
III. Builder Portal and Mobile App

A. General Overview
The Builder Portal offers digital services to builders and developers in Duke Energy’s service territory. Registration for the portal is easy and accessible via a mobile app. The portal allows you to submit service requests online, gain direct contact information for your assigned contact, upload large files, track work order status and more. Many of the same features of the portal are also available on the mobile app.

B. Builder Portal – How to Register
Visit https://builders.duke-energy.com/#/login to register and save the link as a favorite. After submitting your registration, check your email inbox and follow those instructions to complete the registration. A Quick Start Guide can be downloaded from the initial startup menu or at any time by using the drop-down menu in the top left of the screen.

C. Builder Mobile App – How to Install
1. To install by text: Text APP to 302-96. You will receive a text containing a link. Select the link and install the “Duke Energy Builder” app. For your convenience, you are able to use the same login/password information you use with the Builder Portal.
2. To install from the App Store or Google Play: Search for “Duke Energy Builder” and install app.

D. Features and Benefits
Find the Quick Start Guide as a link on the login screen prior to logging in, or in the hamburger button at the top left of your screen after logging in to the portal.

1. Work Orders
   a. Work orders can be found by their address or work order number. They can be saved to your home screen.
   b. Work order details allow user to see the most current information about the work order at any time, including:
      • Status of work order
      • Name, phone number and address of your Duke Energy contact
      • Status of various prerequisites

2. Your Profile – The information saved in your profile will auto-populate to the online service request form.

3. Online Service Request – An online tool will walk you through the service request process.

4. Large File Upload – A large file can be uploaded to work orders tracked on your profile. From the home screen, select View Details for the work order you want to add the attachment to and select ADD Document from the Attachments section. For security purposes, only the user (developer/builder) that uploaded the file and Duke Energy employees will be able to view or download a file.

Other Features Available on Builder Portal
Users of the Builder Portal will have real-time updates and not have to log in as often for status updates when changes occur.

1. Email Notifications – In the “Builder Portal,” select the “My Profile” page in the top navigation bar. At the bottom of the page, each notification is listed with a short description of what the notification is tracking. The user can change the slide toggles to enable/disable each type of email notification.
IV. Process for Residential Developments

A. General Overview
Duke Energy has summarized our internal process in the following chapter to make it easier and more efficient for our customers. The following chapter details what is required for a residential development to move through the process.

B. Overall Process

Notes:
All steps in shaded cells below indicate that action from the developer is required.
Items in bold indicate actions that progress the item to the next step.

<table>
<thead>
<tr>
<th>Work Order Phase</th>
<th>Work Order Status on Portal</th>
<th>Action Taking Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Developer Input</td>
<td></td>
<td>Developer Contacts Duke Energy (email box).</td>
</tr>
<tr>
<td>Project Initiation</td>
<td>Initiated</td>
<td>Duke Energy contacts developer to discuss project and required design information. EDA/ESA designer sends Residential Design Information Form to developer.</td>
</tr>
<tr>
<td>Developer Design Input</td>
<td></td>
<td>Developer gathers documents and information, including load information and CAD file. Provide light locations (Duke Energy in the Carolinas). Developer submits this information to the Duke Energy designer/EDA/ESA.</td>
</tr>
<tr>
<td>Preliminary Design</td>
<td>In Design</td>
<td>Residential Development Information Sheet is verified by engineering. Internal groups are initiated:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• GIS (CAD Files)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Right-of-Way Acquisition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lighting Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Capacity Planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Natural Gas (Midwest only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Design begins to bring facilities to the site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On-site design begins, including: conduit layout, lighting locations, permit requests (NCDOT, RxR, environmental, etc.). Designer submits conduit crossings and lighting locations to developer for preliminary approval.</td>
</tr>
<tr>
<td>Design Approval Input</td>
<td></td>
<td>Developer authorizes design, provides light locations (Duke Energy in Ohio, Kentucky and Indiana) and receives joint trench invoice (if applicable) or after 5 days with no response, design team proceeds to final design.</td>
</tr>
<tr>
<td>Final Design</td>
<td>In Design, Ready for Approval, Approved</td>
<td>Design is finalized, payments determined and contracts (if applicable) prepared. Material ordered. Designer sends developer: CIAC invoice Applicable contracts.</td>
</tr>
<tr>
<td>Final Developer Input</td>
<td></td>
<td>Developer makes construction-related payments, signs contracts, finalizes right of way, and prepares the site for installation.</td>
</tr>
<tr>
<td>Pre-Construction</td>
<td>Ready for Approval, Scheduled</td>
<td>Once the site is ready, work is scheduled to a crew, material is ordered, pre-construction meeting takes place, and locates are ordered. Discuss project construction timeline (date construction to start). Final Site Ready confirmed.</td>
</tr>
<tr>
<td>Construction</td>
<td>Scheduled</td>
<td>Customer is to maintain site-ready status until the start of construction. Crew coordinates with the developer, work order is completed and facilities energized.</td>
</tr>
<tr>
<td>Project Completion</td>
<td>Construction Complete</td>
<td>Crew notifies customer when all work is complete. Crew clears the site of leftover materials, trash, etc. The customer may be asked to provide feedback on the work/customer experience. Any concerns/identified issues will be promptly resolved as appropriate.</td>
</tr>
</tbody>
</table>
C. Submitting Projects

General

The developer or developer’s agent will submit project plans for large-scale residential developments to a shared email address established solely for these types of projects. Internally, Duke Energy will review your documentation and route your request to the correct design team.

How the Process Works

To submit a new large-scale residential development, a developer or developer’s agent sends an email to:

- Subdivisionprojects@duke-energy.com (OH, KY, IN)
- BuilderDeveloperDEP@duke-energy.com (NC/SC)
- BuilderDeveloperDEC@duke-energy.com (NC/SC)
- DEFUDT@duke-energy.com (FL) with the following:
  - Subject line to include: name of project, city and county
  - Attachments to include are:
    - Complete Residential Project Information Sheet
    - Full PDF set of approved final project plans
    - DWG CAD file of approved final project plans
  - A Duke Energy representative will contact you within 24 to 48 hours to confirm that items have been received or to inform you of what information may be outstanding.

Please note: You may find more information on submitting residential development projects within the Construction Toolbox. Once in the toolbox, scroll down to “Additional Resources” and find PDF “Email Address for Subdivision Projects - For Subdivision Developers.”

D. Providing Information About Each Development Project

To help facilitate information gathering required for electric utility design, we have created the Residential Development Information Form to organize and collect the essential information at one time. The form can be found on the Duke Energy website in the Construction Toolbox section designed specifically for Builders and Developers. Use the link for easy access and select the state (top left corner of webpage) where the project is located: Duke Energy Builder Developer and Contractor page.

There are a few items that are important to discuss with your designer during the initial stages of your project:

- Phasing: Please be sure to explain any phasing within the development build-out so that your designer can group work orders and materials for each section.
- Critical sites: As we do design, we aim to be as responsive as possible to any services that are critical to your timeline, such as model homes, lift stations or temporary services.
- Nonresidential/commercial services: Discuss with the designer any commercial service requirements to determine if there are possible charges.
Requesting Construction Temporary Service:
More detailed steps to request service can be found on the Duke Energy website and are summarized below.

- Builder applies for 911 address through city or county
- Builder’s electrician installs temporary service pole and meter base
- Builder/electrician applies for electrical inspection through city or county
- Builder submits request to Duke Energy via these links: [Builder Portal]
- Builder tracks work request

You can apply for service on our [Builder Portal], by phone, or by faxing your completed application and contact to customer service in your area. The number for your area can be found on our website.

Requesting Duke Energy Outdoor Lighting:
At the Duke Energy website, you will find a link to Outdoor Lighting. Here is the link for easy reference: Builders Electric Service Page – Duke Energy. Select the correct state/location within the state.

E. Joint Trench Process

General Comments

- What is a joint trench installation?
  - A business venture between contract installers that work with/for Duke Energy and other utilities (communication, natural gas, etc.) to coordinate and install multiple utilities in a single trench. The contract installers establish contractual agreements with each utility, giving the contract installer the authority to install the facilities on behalf of each utility.

- Who coordinates/manages joint trench installations?
  - In some areas, the designer coordinates and in other areas the contract installer coordinates/manages joint trench projects, working with the other utilities. Duke Energy asks the developer if the project will be a joint trench project. If the developer wants joint trench, Duke Energy notifies the contract installer that the project will be joint trench.
  - The designer/contract installer begins working with the other utilities to create designs for their facilities, material requisitions, construction drawings, etc. Duke Energy provides the other utilities with the Duke Energy construction design. The other utilities coordinate their design (path that the facilities will follow) with the Duke Energy design.
  - Project completion is determined by the utility with the longest timeline.

- Typical work plan for joint trench
  - During the design phase:
    - Developer requests joint trench installation by notifying the designer.
    - After Duke Energy has prepared the preliminary design, the developer approves the preliminary design. The approved preliminary design is given to the other utilities.
    - Duke Energy preliminary design provides the conduit requirements for Duke Energy facilities and this design is used by the builder/developer.
The developer installs the conduits for all utility road crossings and any other specified areas that conduit is required based on the utility’s design specifications. Joint trench conduits must be placed following the depths and spacing required by NESC code and or each utility’s standard. (Refer to the section in the playbook for conduit.)

- Electric service requirements for joint trench utilities (communication, etc.) must be identified during the design phase.

- During the pre-construction meeting:
  - The designer/contract installer schedules the pre-construction meeting, which includes all utilities involved in the project, the developer/designated representative, and engineering for the utilities.
  - During the meeting, the final installation placement and schedule (project timeline) are discussed.
  - Any adverse conditions or unforeseen conflicts not identified on the utility construction designs are discussed. Placement of the equipment – specific location of the transformer, pedestals, communication slicks/pedestals, etc. – is reviewed and any issues/concerns discussed.
  - Based on the project timeline, the developer is given an opportunity to move forward with joint trench or decide for Duke Energy to install Duke Energy facilities (solo).
  - For larger projects, the site delivery of material may require a staging area. The staging area is confirmed during the pre-construction meeting.

- During the construction phase:
  - The contract installer coordinates the installation of all utility material and equipment.
  - The contract installer resolves issues with the developer and utility contacts (Duke Energy, communication companies, natural gas, etc.).

• The builder/developer’s responsibility for joint trench projects:
  - The developer is responsible to determine which utility provider they want in the development for some jurisdictions. Other jurisdictions may have specified utility providers based on established service territories.
  - The developer contacts the selected utilities to notify them of the project and provides the utilities with site plans, load information, etc.
  - The developer makes the decision to install the facilities as joint trench or for each utility to install facilities individually (solo). The decision to install facilities as joint trench must be made at the earliest stage (during the design phase) of the process.
  - The developer is responsible to satisfy any financial responsibilities for the installation of the utility infrastructure within the development.
  - The developer is responsible to install conduit per the design specifications and manage environmental permitting requirements for the development project.
  - The developer is responsible to provide a right-of-way easement(s) for all utility installation.

**Availability of Joint Trench Installation (geographic areas that offer)**

• Joint trench is not available in all locations. Currently, it is offered in the following locations (areas may change and are dependent on the contracts that the contract installer has with the utilities):
  - **Duke Energy in the Carolinas**: (Counties) Mecklenburg, Gaston, Lincoln, Catawba, Cleveland, Union, Lancaster, Cabarrus, Rowan, York, Chester, Stanly, Iredell, Davidson
  - **Duke Energy Progress**: (Operation Centers) Asheboro, Chatham, Sanford, Fuquay, Cary, Zebulon, Selma, Raleigh, Henderson, Roxboro, Durham, Chapel Hill
  - **Duke Energy in Ohio and Kentucky**
Differences Between Joint Trench Installation Process Versus Duke Energy Solo Process

• The timeline for joint trench process can vary and is determined by the timelines of each utility participating in the project. The joint trench timeline is always longer than solo timelines and can be more than 50% to 100% longer than solo installations.
• The space required for a joint trench utility installation is reduced (installation of all utilities is in one trench).
• The developer works with one point of contact on a joint trench utility installation.
• The traffic/volume of construction companies is less on a joint trench installation.
• Fewer utility to utility conflicts occur with joint trench.
• Less flexibility to install facilities out of order/in priority sections with joint trench due to restrictions with fiber installations. Fiber lengths and termination points are predetermined (cut to order) based on the original design. This limits the contract installer’s flexibility to alter the planned path or order of installation.

Commonly Asked Questions & Answers

• Why can’t Duke Energy get the facilities installed quickly in the joint trench development if the contract installer works for you?
  – Duke Energy is only one of the utilities that the contract installer works with to install the electric utilities. The other utilities – communication, natural gas – are also using the contract installer, and any delays from those utilities delay the entire joint trench installation.
• Who is responsible to clean up unused material from the development?
  – The contract installer is responsible for removing all unused material, trash, etc. from the development. There are some utilities that choose to pick up their materials from the development site.

F. Builder/Developer Payments, Contracts/Agreements

Contribution in Aid of Construction (CIAC) for Builders and Developers
Your project may require a Contribution in Aid of Construction (CIAC) based on the charging policies and or tariffs that are filed with each public service commission. The designer will make you aware if there are charges that must be satisfied and the amount that must be paid. The invoice payment is expected within 30 days of receipt.

Other Situations That May Result in Charges to the Builder/Developer
Adverse conditions that are encountered during construction, such as:

• excessive rock
• uneven terrain requiring non-standard construction methods/equipment, etc.
• use of non-standard construction equipment, including boring rigs, Jet track, vacuum excavation, etc.

Contracts and Agreements
The designer will let the builder/developer know if any contracts and/or agreements will be needed for the project.

G. Requirements Prior to Construction
Permits and Easement Requirements
Duke Energy cannot install facilities without the appropriate utility permits, easements and/or encroachments. If the facilities are required to be installed in the public right of way, a utility permit may be required from the appropriate governing body.
Duke Energy will submit a right-of-way permit to the municipality/county. If Duke Energy facilities are required to be installed on private property, all property owners will need to agree to give Duke Energy a utility easement. The easement allows Duke
Energy to have rights and access to maintain and operate its facilities. Duke Energy will provide the appropriate easement to the property owner so that the property owner will be required to sign and notarize the document. If the facilities are required to be installed in the state/federal right of way, an encroachment will be required. Duke Energy will submit the correct forms to the state/federal entity requesting approval. Once approved permits/easements/encroachments are received, Duke Energy can commence construction activities.

Utility and Private Locates
Utility and private locates are required when underground facilities are to be installed to avoid damaging other utility/private facilities. Utility locates are requested by the contract construction company working on behalf of Duke Energy assigned to the project. A positive response from all utilities notified must be received prior to the start of construction. The utility locates are required to be completed within three working days of the request. For private underground utilities, for example irrigation or well pump lines, the developer/property owner is responsible for locating the facilities. The builder/developer assumes full responsibility for damage to any unmarked private facility.

Site Readiness Requirements and Forms
During the design phase of the project, the designer will provide the developer a Duke Energy Site Readiness Checklist. For efficiency and to ensure the construction crews are productive and able to meet the developer’s project timeline, the checklist identifies the items that must be satisfied prior to the start of construction. Once the developer, or developer’s agent, has completed the items on the Site Readiness Checklist, the signed checklist will be returned to the designer and the developer will request to have the pre-construction meeting scheduled.

The Duke Energy Site Readiness Checklists can also be found on the external Duke Energy website, in the Construction Toolbox for Builders, Developers and Contractors (link below). You will need to confirm the correct state and/or area of the state was selected to see the appropriate form, based on the physical address for the residential development project.


The following items are listed on the Site Readiness Checklist and shall be satisfied prior to the start of construction:
1. Streets must be pre-construction grade – either paved or acceptable stone base.
2. Install curbs and gutters if applicable. If no curb/gutter, streets must be pre-construction grade (either paved or acceptable stone base).
3. Conduit/crossovers installed in the correct locations as shown on the endorsement/per specifications. Ends of the conduit marked with vertical indicators (stakes, boards or pipe). Pull strings required. The vertical conduit indicators must be maintained, and if they are no longer visible, the developer will need to remark.
4. All property corners must be staked, lot lines clearly marked and easily identifiable with two distinct lot line reference points. Lot numbers must be painted on the curb or street.

NOTE: Some rear property corners may also be needed (check design plan for route).
5. Cable route/trench area/area for equipment: A 10-foot-wide path must be cleared and kept clear of all building material, etc. This route must be within a specified depth (refer to the Site Readiness Checklist) of final grade. Also, a 10' x 10' area behind each property corner, where a transformer is to be set, and a 4' x 4' area for each secondary pedestal will be cleared and at final grade. The terrain shall be suitable for trenching/excavation equipment and slope shall not exceed limits that would require special equipment (e.g., shoring).
6. All conflicts (water, sewer, storm drain, etc.) in the right-of-way easement or any area where Duke Energy’s cable or equipment is to be installed must be staked and clearly marked. Water and sewer laterals must be staked at stubs if not clearly visible (and where it is coming off the main or from under the pavement). Mains in these areas must be staked every 50 to 75 feet, showing any turns or bends.

7. In multi-unit structures, all meter boxes are permanently and correctly marked/installed. Label meter boxes with 911 address.

Florida builders/developers, please note: The developer is responsible for staking the location of transformers, pedestals and streetlights.

Builders/developers in all jurisdictions: Any change of grade that affects depth of Duke Energy’s facilities will be at the developer’s expense to repair or lower. Anything cut or damaged that is not clearly marked is the developer’s responsibility to repair at the developer’s expense.

H. During Construction – Tips for Success

1. Managing an active job site can be difficult. Items that can help are:
   • Maintaining open communications between the developer, Duke Energy construction crews and the designer.
     – Providing periodic status updates on the project
   • Notifying others (other construction crews/subs working for the developer) of important dates when underground cable/transformer installation work will be done.
   • Maintaining the site-ready status before and during construction of underground cable installation and setting transformers.
     – Protecting locate marks
     – Avoiding conflicts with material deliveries in areas where those facilities will be installed
   • Resolving issues in a timely manner to keep construction crews working.
   • Helping to investigate the cause of damages that occur to underground cables, transformers, switchgear or poles to ensure the owner of those facilities can recover their costs associated with replacement and the replacements can be made to minimize impact to the development project.
   • Avoiding changes to the project that impact the original scope of work. We know that sometimes issues come up that result in changes to the original scope of the development. It is best if changes that impact scope of work can be avoided. In situations where the change cannot be avoided, please contact the designer to discuss those changes promptly to avoid additional delays in the project.
2. Expectations that Duke Energy has for construction crews working on residential development projects:

- Provide updates to the builder/developer or designated contact person representing the builder/developer on any issues that will impact the project timeline.
- Report job site issues to the builder/developer or designated contact person as they are identified and work to get the issue resolved to keep the construction crews productively working.
  - If the issue cannot be resolved to keep the crews working (crews must pull off the project), communicate the date when work will resume once the issue has been resolved.
  - If the issue involves adverse conditions, work with the designer, builder/developer or designated contact person to determine who will resolve the adverse condition and possible charges that may apply.
- Report damages found to Duke Energy cable or equipment to the builder/developer or designated contact person, assisting with the investigation as needed to ensure costs are recovered and the damaged facilities are replaced/ repaired in a timely manner.

I. Duke Energy Work Complete – Customer Project Closed

Once the underground cable and transformers have been installed and energized (by phase and/or entire project completed), Duke Energy construction crews or general foreman should notify the builder/developer or designated contact person of the completion of work.

- Duke Energy – the contractor general foreman and the construction coordinator/designer will review the quality of installation for underground cable, transformers, light poles and fixtures (if installed), and other facilities installed to serve the development. Any issues will be promptly addressed.
- The site will be cleared of leftover materials, trash, etc. promptly.
V. Conduit Standards, Requirements, Crossovers

The conduit standards and requirements given below are currently under review. Updates will be provided in the guide as they are available.

Conduit / Conduit Crossings (North Carolina/South Carolina/Indiana)

General

Conduit / Conduit crossings are installed by the developer on all residential large-scale projects in Duke Energy’s service areas. Typically, crossovers are required for electric, telephone, cable TV and natural gas. The Duke Energy designer will specify where conduit is required for each project.

A “Customer Guide for Installing Conduit” is provided to ensure the installation meets Duke Energy standards. The Guide can be found in the Construction Toolbox.

Installation Information

- When a developer decides to pave a road(s) and/or parking lots before the company can install facilities, the developer is responsible for providing and installing conduit and conduit crossings according to the Duke Energy preliminary electric and outdoor lighting design for the development. The preliminary design will specify the size and location where conduit is required.
- The conduit must be installed with a pull string and 36” of cover (this is the normal depth for road crossings; other depths may be required if vertical separation is needed). The ends of the conduit must be temporarily capped to prevent mud intrusions; caps shall not be glued to the conduit. The ends of the conduit must be adequately marked with wood stakes, conduit, imprints in the curb, etc. so that construction crews can locate.
- Conduits are to be gray schedule 40 (NEMA TC-2) and 90 degrees Celsius rated.
- In areas where Duke Energy does not have a 10-foot-wide right of way to work with standard track hoe equipment, conduit must be installed to avoid abnormal construction charges.
- Conduit is required if the installation or ability to maintain underground cable will be compromised by hardscaping (concrete or asphalt cover) or other obstacles.
- It is mandatory to install conduits near retaining walls to avoid damaging the integrity of the wall and geogrid.
- If it is not possible for the customer to install the meter base in a location where standard mechanical equipment can be used, the customer must furnish and install gray electric grade conduit, at 30” depth to top of conduit, with long radius bends and a pull string. Conduit must be temporarily capped to prevent mud intrusions and adequately marked so the construction crews can locate.
- Brownfield sites must have a conduit system installed for all underground cable by the developer. Duke Energy engineering will provide the conduit system design.

Crossovers (Ohio/Kentucky)

General

Joint trench road crossovers are installed by the developer on all residential large-scale projects in Duke Energy’s Ohio and Kentucky service areas. Typically, crossovers are required for electric, telephone, cable TV and natural gas. Duke Energy will install ducts for primary cable runs and will insert through developer installed crossovers.

Installation information

Duke Energy’s design team produces an endorsement drawing, which is sent to the developer for confirmation. The endorsement
**drawing contains joint trench crossover plan details. Upon review of the endorsement drawing, the developer should express any concerns with the locations of proposed joint trench facilities.**

A typical joint trench plan is as follows:

- Crossovers are typically installed R/W to R/W, property line to property line (unless otherwise noted on endorsement drawing).
- Width of the trench as required.
- If joint trench contains natural gas, a minimum of 24" of cover from top of natural gas duct to final grade is required. **Developer to refer to crossover details provided on endorsement drawing.**
- If joint trench does not contain natural gas, minimum cover can vary from 30” to 36” from top of duct to final grade. **Developer to refer to crossover details provided on endorsement drawing.**
- Conduits are to be gray Schedule 40 (NEMA TC-2), 90 degrees Celsius rated (needed for electric ducts only).
- Communication (telephone and cable TV) and electric ducts are on the bottom of the trench and natural gas is above those ducts. **Size, number and spacing of ducts are shown on the endorsement drawing and vary from project to project, so it’s imperative that you construct your crossovers according to the crossover details provided on the endorsement drawing.**
- **Please take note: Concrete encasement of ducts is required within the city limits of the city of Cincinnati. Duct arrangement will vary from project to project, so it’s imperative that you construct your crossovers according to the crossover details provided on the endorsement drawing.**

**Duke Energy Standards for Conduit Installation by Developer/Contractor(s) – Florida**

**General**

Please ensure awareness of these requirements for developer-installed conduit. The requirements must be met before Duke Energy work can commence.

- All conduit must be installed a minimum of 36" deep.
- All conduit shall be minimum Schedule 40 PVC, gray in color and meet UL requirements.
- Install bags of concrete on the 90-degree sweeps (four 80-pound bags on 6” conduit and three 80-pound bags on 4” conduit).
- After installation, developers must mandrel all conduit.
- After installation, developers must install mule tape in conduit no matter the conduit length.
- Developers shall install at a minimum 48” radius 90-degree sweeps on 6” conduit and 36” radius 90-degree sweeps on 4”, 2 ½” or 2” conduit or as designed by an engineer.
- Conduit crossings are to extend from easement to easement, and be turned up halfway into the designated easement by installing 90-degree bends to turn the conduit and extend above grade a minimum of 36”.
- All developer-installed conduit must be inspected by Duke Energy before the trench is completely backfilled.
- If any of these requirements are not met by the developer installing the conduit, project delays could occur. The developer will also be liable for any added expense incurred by Duke Energy due to their failure to comply with the above requirements.

The intent of these requirements is for the developer to supply a ready-to-use conduit system, at the proper depth and locations with no defects in materials or workmanship, for Duke Energy’s use.
VI. Electric and Gas Services

A. General Overview

Builders and individual customers who are building a home will need to contact Duke Energy to apply for electric and/or gas service. The information below will help you understand the steps involved with electric and gas services, which include:

- Providing the information that is needed to serve the new home
- Making an application for the service (electric or gas) to establish an account for billing
- Understanding the requirements that must be satisfied before we can install the service and turn power on
- Knowing the expected timeline for the service installation

B. Overview of the Process for Residential (Single or Multifamily) and Nonresidential Services (within a Residential Development)

Examples of nonresidential services are clubhouses, entrance signs, electric vehicle charging stations, pool pumps, etc. Proposed: A visual road map has been produced to illustrate how to establish service for a residential or nonresidential account. Please follow the appropriate path to have your account set up and meter energized. Click on each step for more detailed information.
C. Making an Application for Service

To obtain service at the desired time, an application for service needs to be made by the customer or owner during construction or as far in advance of the occupancy of the building as possible. Service contracts and/or deposits may be required prior to service connection. Contact Duke Energy as early in the planning stage as possible to allow adequate time for Duke Energy to secure any right-of-way easements, plan and construct lines, spot meter locations and complete any other work required to install electric service.

How to apply for service
Builders/developers can submit for service through the online Builder Portal, by fax or by phone. The builder can apply for all services – residential and nonresidential services.

How to submit request for service through Builder Portal
Go to: duke-energy.com/home
• From top menu, choose “Select State” and choose the state the location is in
• From top menu, select “Partner With US”
• Next, select “Builders, Developers and Contractors”
• Next, select “Portal Login”
• If currently registered, select “Login”
• If not currently registered, select “Register”
• After logged into app, from top menu, select “Service Request” and complete sections of “Service Request” form

How to request service by fax or phone
Go to: duke-energy.com/home
• From top menu, choose “Select State” and choose the state the location is in
• From top menu, select “Partner With US”
• Next, select “Builders, Developers and Contractors”
• Next, select “Apply for Service”
• Follow instructions or select option beneath the “Visit the Portal” button. There you will find fax and phone numbers for request submission.

Information needed for application for service – residential or nonresidential
This may not be a complete list, but it gives the majority of information you will need to provide.
   a. Contact name
   b. Contact phone number
   c. All required credit information
   d. Federal tax ID/Social Security number
   e. Service address **Note: The service address and the electrical inspection address must match.**
   f. Name of suburb or community
   g. County, state
   h. Lot number
   i. Subdivision name **Note: If the property is outside of a subdivision, do not provide a name.**
   j. Nearest cross street or intersection
   k. Type of service (overhead or underground, residential or nonresidential)
I. For nonresidential services, complete the Commercial/Industrial Service Information Form found in the “Construction Toolbox” under “Additional Resources.”

m. Specific details – square footage of the house/townhome/duplex, is power available on-site, are there privately owned underground obstacles (need to be marked or exposed)

n. Billing name and address

o. Any coordination information for access (name, phone number, lockbox code, access instructions/gate code)

p. For gas service (applies to Ohio and Kentucky):
   • Size and kind of piping ran (flex piping must be bonded and grounded)
   • Type of pressure required: 2lb or standard
   • BTUs

q. If the temporary service needs to be removed when the permanent service is energized, specify this during the application process.

Note: The electrical inspection address must match the physical address for the house/multifamily unit and the address submitted with the electric service application. Variances between the three can cause delays in getting the meter set and service energized between the meter and power source. If the address changes, please notify Duke Energy and provide the correct information.

Also, see the section of the Electric Service Requirements Manual named Requesting New Electric Service.

Use the link below to access the Duke Energy website, Construction Toolbox page. Make sure to select the correct state in upper left corner of webpage where the project is located. You will find a link to the Electric Service Requirements Manual (in Indiana, this is named the Gold Book for Meter Installations, and in Ohio and Kentucky, it is named the Red Book).

duke-energy.com/partner-with-us/builders-developers-and-contractors/construction-toolbox

D. Requirements that Must Be Satisfied Before the Service Can Be Installed

Site Readiness Requirements
- Right-of-way easement – a right-of-way easement/third-party easement as required.
- The electrical contractor should be familiar with the work of other construction crews on the premises so the electric service system and electric meter installation will not be obstructed. Examples of possible obstructions are plumbing, HVAC and other building structures.
- A 10-foot-wide path for the electric service must be clear with obstacles removed from the power source (transformer, pedestal, pole) to the meter base. Site is to final grade. Vegetation trimmed/cleared as needed.
- There are no known environmental hazards or contaminants on the property.
- Address for single-family dwellings must be permanently affixed – no batter boards/signs permitted.
- In multi-unit structures, all meter bases are permanently affixed and correctly marked with the address. Numerals or letters of durable paint or laminated plastic and metal tags fastened securely are types of acceptable permanent identification. The use of marking pens, embossed tape, gummed stickers, paper tags, crayons, chalk or marking scratched or stamped into the enamel finish of the enclosures is not acceptable.

Note: The 911 address is required in the Carolinas, Indiana and Florida.
- Per the Electric Service Requirements Manual (for Duke Energy-owned services), the customer installs a conduit raceway from the power source (transformer, pedestal, pole) to the meter location, with a pull string (applies to
Ohio, Kentucky and Florida). In the Carolinas and Indiana, conduit is provided by the customer and installed with a pull string if the service will cross under a driveway or there is a need to landscape or perform other work on the site that will prevent Duke Energy from trenching after the meter base is ready. For Ohio and Kentucky, customer owned services can refer to the Electric Service Requirements Manual (Red Book).

E. How Electric Service and Meter Get Energized

The requested electric service may be inside a residential subdivision or may be outside a subdivision. If the requested service is inside a subdivision, the underground cables, transformers and pedestals may already be installed. If this is a new subdivision, the underground cables, transformers and pedestals may be in the installation process but not completed. If the service is not inside a subdivision, there may or may not be available power close to the property and a designer will need to assist with the request. Below are the processes that the electric service request can follow.

Residential Subdivisions: Energized Subdivision/Existing Infrastructure

After Duke Energy receives the request for electric service and the customer/builder has provided the information necessary to establish the electric account for billing, the service order will be created in the work management system.

• In Ohio and Kentucky, the service order will be placed on hold until the electrical inspection has been received.
• In Florida, Indiana and the Carolinas, the service order will be placed on hold until the builder notifies Duke Energy that the site is ready for the service to be installed.

Once the on-hold requirements have been satisfied, the service order will be released to the service crew. The service crew will install the appropriate service for a 200-amp or 400-amp service. The service may be overhead or underground. In some jurisdictions, the customer installs the service cable. The crew will make connections at the source (pedestal, pad mounted or overhead transformer, pole) and will terminate the service cables in customer-provided meter base. If the electric inspection has been received by Duke Energy, the service crew will set the meter and will energize the meter (power will be on). In some areas, a separate crew will set the meter following the installation of the service. If the electrical inspection has not been received by Duke Energy, the meter will not be set, and the service order will be placed on hold.

If there are issues found by the service crew that prevent the installation of the service, the service order will be suspended. A Duke Energy representative will contact the customer/builder to notify them of the issue and discuss a time when the issue will be resolved. The service order will be reissued when corrections have been satisfied.

Residential subdivisions or services outside of subdivisions: Transformers and cable Installation are in development and there is no power source available.

If the development/subdivision electric system has not been energized, the service work order will not be initiated to the service crew. After the electric system is energized, the work order follows the same path given above for energized subdivision.

If the service is not within an established subdivision and electric power is not available on the property, the service order will route to a designer, who will contact and work with the customer/builder to design and release the work order(s) to bring power to the site and install the service to the home/townhome/duplex. These work orders will not have the same timeline as the service orders. The designer will provide the customer/builder the timeline based on the scope of work involved.
F. Expected Timelines for Electric Service Installation

Note: The timeline is based on all primary facilities (transformer, primary cables, secondary pedestals) that have been previously installed and are energized. Weather or storm restoration requirements may impact the timeline.

The typical timeline to have the underground service installed is 10 business days after all site-ready requirements have been satisfied and the service crew has received the work order. The standard timeline to have the overhead service installed varies based on construction lead time. The local designer can provide the current lead time. In some areas, additional time is required to receive the electrical inspection and to set the meter.

- In Ohio and Kentucky, the service work order will not be released until the electrical inspection has been received. Generally, the service and meter set will occur at the same time.
- In the Carolinas and Florida, the underground service will be installed within 10 business days. In Duke Energy of the Carolinas, the meter will be set by a Duke Energy service crew once the electrical inspection has been received. In the Florida and Duke Energy Progress service areas, a separate crew will be scheduled to set the meter. If the electrical inspection was not received at the time of the underground service installation, a separate trip will be made to set the meter. Up to three business days are allowed for the meter set following notification of the electrical inspection.
- In Indiana, the underground service will be installed and the meter will be set within eight business days (providing the electrical inspection was received prior to the start of construction).

G. Gas Service (Ohio and Kentucky)

How to get a gas meter set

- The Builder reports that the gas service has been connected to the live gas main. The residential customer-installed gas house-line has been connected to the meter bracket. Request the gas meter by calling 877.700.3853.
- Builder must pay for first fee inspection visit and any subsequent visit(s) resulting from failed inspection(s)

Criteria needed for gas meter to be set

- Flex piping must be bonded and grounded and requires a sleeve going through the firewalls
- The house line must be capped off or hooked to at least one appliance

After receipt of the service order, the service crew has up to three business days, weather permitting, to set the meter.

For complete information on gas service and meter set requirements, visit the link below to request a copy of the Gas Service Manual.

duke-energy.com/business/start-stop-move/gas-service-manual

Typical drawings depicting gas meter locations are as follows

- Joint Utility Service Trench – page 46, Section J, Sketch 1
- Gas Piping Through Hard Paving – page 46, Section J, Sketch 2
- Residential Meter Locations Restrictions – page 46, Section J, Sketch 4
H. Checking the Status

When should I call to check status of my meter set?

Electric Meter
If the electric service application was taken via Builder Portal, the meter set work order can be monitored as often as desired using the Builder App.

If the work order is not being tracked via Builder Portal and the electrical inspection release has been received, or if you are unable to determine the reason for the delay, contact the Duke Energy Customer Care Operation Center for the following:

- If the meter set is critical to your business or is high profile, builders should confirm with the local inspection entity that the inspection has been released to Duke Energy. There may be a system delay for the electrical inspection confirmation.
- If after three to five business days the meter has not been set and there are no issues that the customer/builder still needs to resolve.
- If a deposit is required to establish electric or gas service, this requirement will delay the meter set work. The Customer Care Operation Center representative will be able to determine if this is the cause for the delay.

Gas Meter (applies to Ohio and Kentucky)
If gas meter has not been set five days after notification of passed inspection, contact the Duke Energy Customer Care Operation Center to check the status of the gas meter set work order.
VII. The Process for Outdoor Lighting

A. General Overview

Why choose Duke Energy for Outdoor Lighting?

• Over 2 million lights installed
• Experienced, trusted provider of lighting solutions
• Installation, maintenance and energy included in one low monthly cost on your electric bill
• Typically, no upfront capital required
• Design and product selection expertise provided at no additional charge
• Convenient, 24x7 support and worry-free maintenance
• Premium quality products that meet utility industry standards
• Utility industry leader in emerging lighting technology
• No recurring labor and material cost due to weather or unexpected damage
• Sustainable energy-efficient products available

The following information is provided to help our customers know how to request outdoor lighting from Duke Energy and to know the business process used for lighting. It is our pleasure to provide you quality products to serve your lighting needs.
B. How to Request Outdoor Lighting for a New Project

To request outdoor lighting for a new project, the builder/developer may notify Duke Energy by phone, fax, email or the Duke Energy Builder Portal accessed on our webpage. The portal was specifically designed as a resource for builders, developers and contractors. Upon submitting the work request using the Builder Portal, please be prepared to provide the name of the project, project address and city/state where the project is located. If available, please include a preliminary site plan. To explore Duke Energy's Outdoor Lighting options, visit our website at duke-energy.com/OutdoorLighting. Be sure to select your state in the top left corner to ensure you are viewing accurate offerings in your area.

Advance Notification

At Duke Energy, it is our goal to meet the service needs of our customers in a timely manner. To avoid any service delays, please provide as much advance notification as possible. For example, once a preliminary site plan is available for the project, please notify the Duke Energy Customer Call Center.

866.372.4663 (FL)
800.636.0581 (NC/SC Duke Energy Progress)
800.454.3853 (NC/SC Duke Energy)
877.700.3853 (OH/KY)
800.774.0246 (IN)

It is important to collaborate with internal engineering groups to ensure the timeliness of your project. For new residential subdivision projects, lighting information can be submitted using the “Residential Development Information Form” on duke-energy.com/builders-developers in the ‘Construction Toolbox’ section. Forms are below for easy access, but please note if the form changes, the updated form will only be available on the website above:

Florida
Carolinas
Greensboro, Charlotte, Greenville
Ohio, Kentucky
Indiana

Information and Requirements to be Satisfied

There are several requirements that the builder/developer will need to satisfy before the project can be designed and released to scheduling. We have listed a few of the requirements below, but this may not be a complete list. The Duke Energy designer will provide other requirements, if applicable.
Utility Right-of-Way Easements

It is important to know that easements are required when installing:

- OH/UG primary cable
- Streetlight and new pole
- More than one pole on private property
- UG cable and switchgear (requires 20’x 20’ easement)
- Cable (overhead or underground) that crossed one parcel to serve another (or serving more than one customer)

Ordinances

It is the obligation of the builder/developer to understand city/county ordinances and/or restrictions for lighting. The builder/developer is responsible for obtaining city/county approval for Duke Energy proposed lighting, to include pole and fixture type.

Florida Ordinances, Select County, City or Town that you want to check. Search both Code of Ordinances and Land Development Codes. Use “LIGHTING” as the search word.

City of Asheville NC Lighting Ordinance

Buncombe County NC Lighting Ordinance

Builders/developers can also work with Duke Energy designer to determine ordinance requirements for each area.

Note: This is not a comprehensive list of ordinances. Please consult your local municipality for guidance.

Mid-west (Ohio, Kentucky and Indiana)

1. Customer to check city and county ordinances for restrictions.
2. Duke Energy to work with each city/county to determine if there are any permits required.
3. Easements are required when crossing another person’s property to get to the property where lights are being requested.

Permits

Duke Energy will work with each city/county to determine if permits are required. Any fees associated with permits will be communicated to the builder/developer as part of upfront construction costs.

C. The Design Phase

General Overview

Once the request for outdoor lighting is received, it will be assigned to the appropriate Duke Energy designer. The designer will contact the builder/developer to begin discussing the project. Items that are important to cover during the design phase are:

- the overall project timeline and the timeline for the outdoor lighting installation
- review of the requirements that will need to be satisfied (easements, ordinances, permits, etc.)
- lighting type, desired use and other design specifications
- lighting service agreements/contract requirements and upfront charges (CIAC)
- site-ready requirements that must be satisfied prior to the start of construction
Determine the Type of Outdoor Lighting and Design Specifications

Photometric designs:
Duke Energy offers a photometric design, if requested. The developer must provide an AutoCAD file containing the following:

• the proposed landscaping
• all utility information along with the associated easement
• the site representing the “proposed” design
  – Remove demolition details from the drawing, (i.e. old buildings, curbing, trees, etc.) so it is clear what the finished site will look like
  – Remove any 3D information from the file (no Z-axis component)
  – Remove any building interior details (walls, furniture, bathrooms, etc.). Delete unnecessary data (include layer filters) to minimize the file size
  – Cancel any file view rotations and alternate UCS modes – restore it to normal UCS
  – Include a vicinity map and correct North arrow orientation
  – Include property dimensions and bearings (COGO or metes and bounds information)

Type of Lighting Offered by Duke Energy
LED is the only offering and this is due to several reasons:

• Manufacturers have curtailed high intensity discharge (HID) fixture production due to a decrease in customer demand. These include mercury vapor, metal halide and high-pressure sodium products.
• Energy use for LED lighting is lower than HID, making it a better, more efficient product for the environment.
• Because of the emphasis on LED from government, utilities and other key stakeholders, the shift has been from HID TO LED.

Please visit our Design-A-Light website to view the different types of lighting options in your area; once on the webpage, please ensure you have selected your state in the top left corner of the page.

Please note that all decorative (non-wood) poles are fed from underground (the poles are not served from overhead conductors).

Duke Energy offers LED lighting in 3000 kelvin (K), which is a warmer/softer light, as well as 4000K. Kelvin is the color temperature of the Light Emitting Diodes (LED). Both are available; however, the 3000K may not be available for all fixtures. The lighting designer will be able to provide more details.

Poles and Pole Placement:
Duke Energy offers area and street lighting on both wood poles and decorative poles. In the Carolinas West locations, the company offers wood poles for traffic signal support and decorative mast arm traffic signal poles (with the option for a streetlight).

New light installations require Duke Energy to be able to install and maintain the pole using standard construction equipment. All pole locations must be truck accessible. If the desired location for the pole cannot be accessed by a truck, consult with the Duke Energy designer on possible alternatives.
Duke Energy light fixtures shall not be mounted on a customer-owned pole. In North Carolina, South Carolina, Ohio, Kentucky and Indiana, we will allow the placement of a Duke Energy fixture on another utility pole (joint use agreement). Placing a Duke Energy fixture on another utility pole is not permitted in Florida. Duke Energy light fixtures shall not be placed on trees, the sides of houses/buildings, or items other than approved poles.

Duke Energy will not place a pole and light within another utility’s assigned service territory.

Once the new poles have been installed, any relocations or modifications to the installation will be at the expense of the customer. It is critical that the customer identify any and all obstacles, such as storm drains, wheelchair access/crossings, and landscaping plans that may interfere with the light placement/quality of light, in advance, so they can be taken into consideration to avoid construction delays and or additional charges.

**Underground Cable/Conduit:**
When underground lighting cable will be installed in areas that will be accessible in the future, such as grass or natural areas, the cable can be buried. If the cable will be installed in areas that will be covered with concrete or pavement, conduit will be required. Lighting within the designated downtown underground areas requires the use of concrete encased conduit for street and pedestrian lighting within the public right of way. In Florida, all underground cable must be installed in conduit.

Conduit provision and installation varies based on your geographic location. In Ohio, Kentucky, Indiana and Florida, the customer can choose to provide and install the conduit, following Duke Energy specifications, or pay the company the cost of the installation. Duke Energy and Duke Energy Progress customers are required to provide and install the conduit to the specifications.

All customer-installed conduit must be inspected before the conduit is covered. If concrete-encased conduit is installed by the customer, it shall be inspected and approved by Duke Energy prior to the placement of concrete. The conduits will require mandrel testing prior to the company accepting ownership of the concrete-encased conduit system. Any defective conduit installations (customer-installed) shall be corrected by the customer at the expense of the customer.

When the customer is installing the conduit, they will need to stop the conduit run 2 feet back of each pole location on each side of the pole. They also need to provide pull strings in the conduit and have the conduit caped at each end. A stick of conduit or stake must be used to mark the ends of all conduit.

For all underground installations, the developer is required to have the site to final grade and make sure that the area is free of any obstacles. If there are private utilities in the area, the developer must have them located before we can start the installation.
Types of Foundations
Duke Energy offers several types of pole foundation options: direct bury poles, concrete reveal (height of 2 feet (Duke Energy Progress only) or 3 feet), flush mounted concrete pad, and screw-in type foundations. The concrete foundations are either poured in place or they are precast. Set and cure time is required for all poured foundations before the poles can be mounted to the foundation. The designer will indicate which type of foundation will be used. Dependent on the type of pole selected, the required bolt pattern is used for poured or precast foundations. Any changes to the pole selection after materials are ordered can cause delays and additional costs to the developer for the lighting installation. Foundations are not used in Florida. All poles are direct buried.

Secondary Pull Box/Flush Mount/Above Ground Pedestal:
Duke Energy requires secondary hand holes and pedestals to provide pulling points, access to cables, and to make taps to serve customers or lighting installations. These enclosures are most commonly used to allow connection points for secondary/service conductors as well as street lighting conductors. They are typically found in sidewalks, grass or landscaped areas at the intersection of street crossings or at the base of decorative light poles. Duke Energy does not allow secondary hand holes/flush mount pedestals to be installed within the streets or areas subject to vehicle traffic. The enclosures require 3 feet of clearance on all sides to allow safe operations and maintenance. Florida requires flush mount pedestals (10 x 10 round) on all underground lighting installations at the base of each pole. Duke Energy Progress also requires flush mount pedestals (11 x 18 or 13 x 23) when decorative poles are used and at the base of each concrete pole. Ohio, Kentucky, Indiana and the Carolinas use flush mount or above ground pedestals as needed based on the terrain and or geographic area.

As for the installation of secondary hand holes in Ohio, Kentucky and Indiana, whoever installs the conduit system installs the secondary hand holes. In Duke Energy Progress, large cities and towns have the option to install them, but Duke Energy typically installs secondary hand holes and all pedestals (flush mount and above ground). In Florida, Duke Energy installs all the underground systems (conduit, cables, etc.) including the secondary hand holes. In the Carolinas, Duke Energy installs the secondary hand holes and all pedestals (flush mount and above ground) when they are required. In all jurisdictions, Duke Energy provides the secondary hand holes and pedestals (flush mount and above ground) and inspects all customer-installed installations.

Outdoor Lighting Contract/Service Agreement
Duke Energy establishes a contractual agreement with the customer who will be responsible for the financial terms of the lease of the outdoor lighting services. The agreement covers the installation, maintenance and repair of the lighting system. The contractual agreement is prepared by Duke Energy and contains the list of lighting products selected by the customer, along with the monthly fees and any other extra facilities that are required for the service. The customer should review the contractual agreement to ensure what they are requesting is listed correctly and all the information to establish the billing account for the lighting service is correct (name, billing address, federal tax ID, etc.). If anything presented on the contractual agreement is in error or changes at any time during the process of getting the lights installed, a new contractual agreement will be required. Contractual agreements are not transferable. The contractual agreements are established for a set contract term, which can vary by jurisdiction. The Duke Energy designer will explain the terms of the contract with each customer. Penalties can occur if a contractual agreement is breached.
Duke Energy requires a signed contractual agreement before we can proceed with the project. Any upfront charges must be paid before the project will be released to construction.

**Pricing**

Each job is unique and requires a design in order to get accurate pricing for the customer. Depending on which territory you are in, there are different adders for underground lighting. Adders are items that are not provided in the standard installation covered by the rate structure and are handled as additional charges based on the selections made by the customer or the location where the customer is requesting the light to be installed.

In Ohio, Kentucky and Indiana, there are no extra adders for underground installations. However, if there is not an existing power source that can be used to serve the lights, and a transformer will be required only to serve the lights, the total cost for the transformer will be billed as CIAC.

In Duke Energy Progress, there is an adder of either $3.21 per month or a one-time lump sum charge of $521 per light served by underground. If a transformer is installed strictly to serve lighting, the cost of the transformer is applied to the contract as a monthly extra facilities charge.

In the Carolinas there is an additional charge for secondary cable exceeding 150’ per pole. Guy wire, lift poles, primary line extensions solely for serving lights, etc. are applied to the service agreement as a monthly extra facilities charge.

Florida does not have adders for lighting.

**Outdoor Lighting – Lead Time for Material**

Duke Energy does not maintain a stock of all poles and fixtures. We partner with our material suppliers to maintain a limited supply within the manufacturer’s warehouse. Duke Energy is required to provide a notification, and there is a typical lead time for all lighting materials (poles, fixtures, brackets, etc.). A minimum of seven weeks is needed to order most any type of decorative poles and fixtures. Some poles and fixtures may require longer than seven weeks’ advance notification. Wood poles require less lead time. The signed lighting contractual agreement is required before material can be ordered.

**Charges or Payments in Advance of Construction**

Contributions in aid of construction (CIAC), such as adverse conditions, abnormal construction charges, and decorative adder fees, must be paid in advance of the project being released to construction. The designer will submit an invoice and payment is expected within a 30-day period after receiving the invoice.

Duke Energy has upfront and monthly payment options. The lighting designer will be able to cover the different payment options with you in more detail. Duke Energy Progress will apply CIAC charges less than $500 to the customer’s existing account (electric or lighting). The amount should be paid at the next payment cycle. CIAC amounts equal to or exceeding $500 will be invoiced separately.
Florida provides an option to pay CIAC in advance as a lump sum fee or have the amount included on the service contract as a monthly extra facilities charge. If the lump sum option is selected by the customer, the payment in full is required before the project will be released to construction.

**Adverse Condition/Abnormal Construction Charges**

Abnormal construction/adverse conditions apply when the company cannot install the facilities using standard installation methods. Standard installation methods for outdoor lighting are direct bury (open trench) for underground conductor, pole installation using a hydraulic auger/line truck, and minimal hand digging. Some areas require the installation of a conduit system (conduit and pull boxes) or may require a duct bank system (concrete-encased conduit and pull boxes). The Duke Energy Lighting designer will communicate the standard based on the location where lighting is requested.

The designer will notify the customer of all anticipated abnormal construction/adverse condition costs prior to the installation of electrical facilities. In the event the adverse condition is identified after construction has begun, the customer shall be notified as soon as possible. The customer shall be given the option to remove the adverse condition to avoid extra charges as long as the action taken does not delay the company's construction schedule and will meet the company's construction specifications for installation.

If conditions within the customer’s control have changed between the time of the original design estimate and the installation (for example, hard surfaces were supposed to be unpaved until the company’s facilities are installed, but customer paves before our crews arrive or conduit(s) for road/driveway crossings are missing or not marked or excessive hand digging for work other than services), then the customer will be billed for the additional installation costs incurred.

Listed below are examples of abnormal construction costs that are billed to the customer:

- composition of land or insufficient clearances prevent use of standard underground mechanical construction equipment or require excessive labor
- rock removal or other obstructions from underground path for infrastructure work, including secondary cable in developments, and lighting cable
- hand-digging in excess of 50 linear feet for infrastructure and lighting cable
- boring holes in solid rock to install company poles and anchors
- installing underground facilities under hard surfaces (setup costs are to be included). Example, punches under flowerbeds, retaining walls, road, etc.
- customer-requested mechanical trench tamping
- landscaping, e.g. seed and straw, following initial installation on either the requesting customer’s property and/or any third-party property impacted by the requesting customer’s construction requirements
- hand digging for the pole installation when mechanical method cannot be used due to the close proximity of other utilities/adequate space not provided
Governmental Requirements

- In some jurisdictions, Decorative Adder Fees must be paid before the city/municipality will take over payment for the lights. At the time new lighting is being installed in a new residential development, the builder/developer will need to notify engineering if the city/municipality plans to take over the lighting contract with Duke Energy. The Decorative Adder Fees will need to be paid by the builder/developer up front, before the city/municipality will assume the lighting contract.
- In some jurisdictions, the city/municipality may only agree to certain types of light fixtures and poles.

D. Pre-Construction Phase

Prior to the start of construction there are certain requirements that must be satisfied. Below is a list of the requirements.

Site-Ready Requirements

The Duke Energy designer will provide builders/developers the specific site-ready requirements that must be satisfied. In some jurisdictions, a form will be provided and must be signed by the builder/developer and returned to the designer. The project will not be released to construction until Duke Energy receives the signed form from the builder/developer.

Conduit and Staking Requirements

Requirements for conduit are:

- 2” schedule 40 conduit rated at 90-degree C or flex duct for trenchless installations
- install conduit at 30” depth
- a maximum of (3) 90 degree sweeps with 3’ radius
- conduit must have a pull string
- ends of the conduit must be capped to prevent mud/debris from entering conduit
- ends of conduit must be marked with a stick of conduit or staked

Midwest (Ohio, Kentucky and Indiana):

Conduit is required for all commercial lighting projects. The customer should provide and install the conduit or Duke Energy will install at the customer’s expense. In subdivisions, if the underground cable will be installed greater than one lot, Duke Energy installs the conduit at the expense of the customer. In a subdivision, the developer is responsible for staking the light locations.

North Carolina and South Carolina:

For commercial parking lot lighting, the customer installs the conduit in areas where the lighting cable will be covered by pavement/concrete, including road crossings, or Duke Energy will install at expense of customer.

For residential developments, conduit is required for road crossings and other areas as specified by the designer.

The designer stakes all lighting pole locations for residential (apartment complexes, subdivisions, single homes) and commercial properties (cities, towns, municipalities, businesses).
Florida:
Conduit is required for all underground cables. The designer will provide the route for the conduit, the customer can install the conduit or pay Duke Energy to install. If the customer will install, the designer will provide the conduit requirements showing the type of conduit, depth of installation, etc.

The customer is required to stake the light locations.

Pre-Construction Meetings
Prior to the crew starting the installation of the light facilities, a pre-construction meeting may be required. The designer will work with the customer to schedule the meeting. During the pre-construction meeting, the following will be discussed/verified:
- discuss the route of installation
- potential risks/conflicts that may come up during construction
- confirm the site is to grade
- verify all light locations have been marked/flagged and no conflicts identified

The designer will discuss the timeline for the start and completion of construction during the meeting.

It is very important for the builder/developer (or their designee) to participate in the pre-construction meeting. This is the last opportunity to minimize any conflicts or delays in the project, and the pre-construction meeting is used to level set the expectations of all involved in the project.

E. Construction Phase
During the construction process, while the crew is installing the new underground lines and/or installing the poles and lights, please feel free to contact the Duke Energy designer that is over the project if you have any questions at all about the installation process. The builder/developer needs to make sure there are no obstacles in the way of setting the poles and/or running the underground lines. If there are any obstacles in the way, they will need to be removed before the crew shows up to the site to start the installation process. Communication is key to getting the project completed the way that it needs to be completed. Any questions or concerns should be directed to the Duke Energy designer.

F. End of Construction, Quality Review and Close with the Customer
Once construction has completed the installation of the lights, please notify the Duke Energy designer if there are any issues/concerns with the quality of installation. The designer will re-visit the site to confirm that everything was installed per the original design. If issues are identified with the installation, the designer or the construction specialist will send the crew back to the site to make corrections.

1. Quality Review
The lighting construction specialist will answer any questions once the work order is in a crew’s hands. The crew and the lighting construction specialist will make sure that the poles/lights are installed according to Duke Energy’s specifications. While on-site, the crew will make sure the lights are burning correctly, but once the crew leaves the site, the customer will need to call in to the Customer Service Center if a light is not burning.

2. Close with the Customer
When a job is complete, the designer should follow up with the customer to make sure that the job was completed to their satisfaction and to see if the customer has any questions. If the customer has a question(s) about the construction
piece of the project, the designer should engage the lighting construction specialist for their insight into the customer’s question(s).

3. Initiate Monthly Billing
Following the completion of the installation for all lights, the lighting service agreement/contractual agreement will be effective, and the normal billing cycle will start.

G. Maintenance and Repair
A customer can report a light not working by calling into the Duke Energy Customer Call Center or by going to the Duke Energy light repair tool on the Duke Energy homepage. Below is a quick link to the site:

duke-energy.com/streetlightrepair

If you are wanting a pole painted, you can call into the Duke Energy Customer Call Center and request for a pole to be painted. This will create a work order, which will be sent to a Duke Energy representative in your territory who will inspect the pole condition and determine if it meets the criteria. The Duke Energy representative will contact you with the results of their assessment.

Use the following phone numbers to contact the Duke Energy Customer Call Center:
866.372.4663 (FL)
800.636.0581 (NC and SC - Duke Energy Progress)
800.454.3853 (NC and SC Duke Energy)
877.700.3853 (OH / KY)
800.774.0246 (IN)

H. Requests to Relocate Outdoor Lighting
There may be occasions when existing light poles conflict with site clearing or construction of a new project. In the event a light pole needs to be removed or relocated, please contact the Duke Energy Customer Call Center to initiate the process. A work order will be generated and sent to the local lighting designer. The lighting designer will review the existing lighting contract and will determine if there are charges required for relocating the light.

If there is a request to relocate or remove a light that is being paid for by a municipality, the builder/developer/customer/HOA must discuss the request to relocate or remove a light with the municipality. The municipality will make the formal request with Duke Energy. Contractual obligation guidelines still apply.

New Lighting Projects
To avoid additional charges, the builder/developer must obtain approval of the Duke Energy photometric design prior to the work order being released to scheduling. Any changes after the job has been scheduled and/or installation is completed may result in additional charges.

To ensure accuracy, it is imperative that the builder/developer notify Duke Energy of any design and or site changes throughout every step of the project. Conducting a site visit with the local lighting designer during the design phase of the project and or during the pre-construction meeting may minimize the opportunity for additional charges.
I. Requirements for a City/Municipality to Take Over Lighting
The developer/customer will work with the city or municipality to discuss the requirements and approval for taking over the lighting. The city or municipality will contact Duke Energy to start the process.

J. Special Considerations for Street Lighting – State or Federal Highways
Requests for outdoor lighting along a city, state or federal highway require the customer to work directly with the state or city Department of Transportation (DOT). The DOT will initiate a work order through Duke Energy for the poles/lights and the poles/lights will be billed to the DOT.

K. Tree Trimming or Clearing Around a Light Pole and Fixture
Consideration should be taken for the placement of light poles and fixtures to avoid placing them near trees that may hinder or reduce the effectiveness of the light. In the event there are trees that obstruct the light, Duke Energy does not trim or remove the trees. If the tree grows around the pole or into the overhead lines that provide electric service to the lights, the customer can request the company to drop the service cable and the customer will be able to remove the trees or hire someone to remove them safely. The service cable will be re-attached once the tree work is completed.
VIII. Appendix/Exhibits

Access Duke Energy’s Construction Toolbox for Builders, Developers and Contractors. Once you enter the website, you will be able to select your state and jurisdiction. The toolbox is user-friendly and will direct you to the business need area and address Builder needs. Other references you will find are the Requirements for Electric Service and Meter Installations, Gas Service Manual, Pad-mounted Transformer Concrete Pad Specifications, Approved Meter Enclosure List, and Email Address for Subdivision Projects (PDF).