

# Guide to Installing or Upgrading your Commercial Electric Service

The Process for Installing a New or Upgrading an Existing Electric Service with National Grid in MA

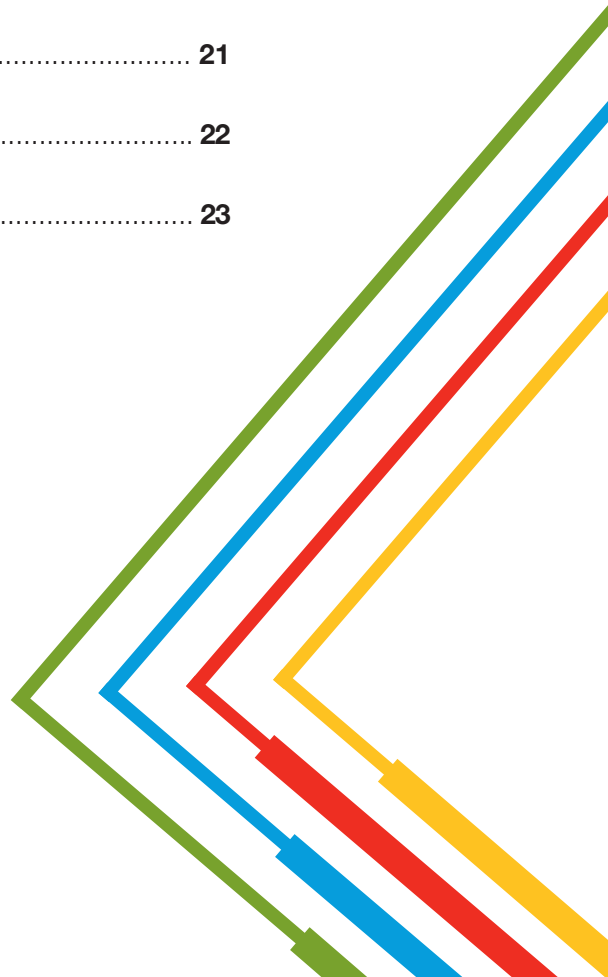
- Construction Process Flow Chart
- How to Avoid Delays
- Frequently Asked Questions
- Glossary of Utility Terms
- Project Forms and Checklists





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## I. Introduction

This document will provide you and/or your construction professional with an overview of the necessary steps to install a new service or upgrade existing electric service with National Grid. Depending on the complexity of your project, installing and energizing a new electrical service could take 40 weeks or longer. Planning ahead and becoming familiar with our process will help to minimize construction and other delays.

Just as constructing or upgrading a building requires involvement of multiple disciplines – from plumbing to electrical, HVAC and more, so too does the process of planning for and installing electric service that meets your needs, is installed efficiently and on time. This may include a considerable amount of research, engineering, design, civil work and legal review.

For example, at the turn of the century, New England was at the center of the industrial revolution. Quick to embrace progress and innovation, our cities and towns “electrified” a wealth of now historic buildings when electricity was in its infancy. Many of these buildings continue to have antiquated infrastructure that did not envision newer energy intensive uses, such as computers, air conditioning and energy intensive manufacturing. Even buildings that once housed manufacturing enterprises still often feature obsolete voltages and infrastructure that, while functional, do not meet the needs of modern businesses.

Developers are typically aware that they will need to upgrade and modernize the internal wiring inside the building. Often overlooked, however, are the corresponding National Grid electrical upgrades in the street and associated costs that will be needed to serve the building’s new needs.

In addition to these upgrades, infrastructure challenges often appear in buildings located in densely developed areas, such as downtown areas. Because of limited space in these urban areas, electrical equipment owned by National Grid is often installed inside the building. For example, National Grid transformers may be housed in basement vaults belonging to the building owners. Building owners are often unaware that they own these vaults and are responsible for any vault enhancements that may be required to accommodate any new equipment, including any civil work (e.g., excavation) that may be required on their private property.

Throughout your project, you will be assigned a Customer Fulfillment Representative (CF Rep) to help you through your entire project from start to finish. They will work with our engineers to evaluate the most economical method for installing a new service or upgrading the existing service to your building. Your CF Rep will also outline the scope of work needed as well as estimate the costs associated with National Grid’s work.

## II. Construction Process in Pictures

The process of installing a new or upgrading an existing electric service in a building occurs in phases, including planning, designing, legal and environmental reviews, permitting, scheduling, construction, inspection and payment.

Requests for new and upgraded electric services are tracked through National Grid’s Work Management System. Each phase is referred to as a “Status”, for example:

- Status 10 – Preliminary Phase
- Status 20 – Design / Engineering
- Status 40 – Pre Construction
- Status 50 – Scheduling
- Status 60 – Construction

The accompanying Flow Chart provides a simplified overview of what happens in each status. Please note that energizing a new electric service, depending on the complexities, can take up to **40 weeks** or longer.

Please be sure to reach out to any other utilities (phone, internet, cable, gas, water, sewer) that you require at your site.

# Electric Service Construction Roadmap

**1** This symbol indicates a step where delays are common. Match the corresponding number to that in the "Unforeseen Issues" document for more information.

**STOP** This symbol indicates that the process **cannot proceed** until the customer fulfills the requirements in that step.

**2** This symbol indicates that the step requires an action by the customer.

**Preliminary Phase (Status 10) Target: 2 Weeks**

Customer calls 1-800-375-7405 to apply for a new electric service or service upgrade. Required: Customer's billing information.

A Work Request Number (WR#) is created and reported back to the customer. Time: 1-3 days

Customer Fulfillment Rep is assigned to the project. They call the customer to determine needs and send a "PES Package." Time: 3 days

Customer (or their designee) must provide info requested in the PES package. Required: expected loads, one-line diagram, site plan, CAD file and completed Easement Information Form at a minimum.

**Design / Engineering Phase (Status 20) Target: 14 Weeks**

Loads are approved and a National Grid Design Engineer is assigned. The Design Engineer will schedule one or more site meetings to gather more info about your project and discuss available options for providing service.

Please have all key decision makers for your project in attendance at the initial site meeting, for example: electrical designer or electrician, civil contractor, project manager or developer, architect and financial representative. Time: Varies, 2-3 weeks

A civil and/or manhole survey may be conducted by National Grid. Time: Dependent on complexity of the job.

The electric design for the new service is completed and approved. Time: Dependent on complexity of the job.

The CIAC is calculated to determine the customer's financial contribution. Time: 5 days

**Parallel Efforts**

A Service Agreement is drafted and sent to the customer. Time: 2 days

The Service Agreement must be signed by the customer and returned to National Grid, whether or not a CIAC payment is due.

If the CIAC amount is >0, an invoice is generated and sent to the customer. Time: 3 days

The invoice must be paid in full before the process can proceed.

If necessary, a Grant of Easement is drafted by National Grid and sent to the customer. Time: up to 4 weeks

The Grant of Easement must be signed by the customer and returned to National Grid.

**Pre-Construction Phase (Status 40) Target: 14 Weeks**

**Customer Actions**

For jobs requiring underground construction, customer must meet with National Grid for approval prior to performing any civil work.

DIGSAFE MUST BE CALLED BY CUSTOMER OR CUSTOMER'S AGENT BEFORE DIGGING ON PRIVATE PROPERTY!

All relevant permits and environmental requirements related to the customer's private property must be met

National Grid must approve any customer-performed civil work before the job can progress to the next step.

**National Grid Actions**

National Grid will file all relevant permits and petitions with the appropriate town and state authorities for work needed in the public way.

National Grid will complete any required civil work in the public way.

If the project requires poles to be set in a National Grid pole set area, National Grid sets the poles.

ALL NATIONAL GRID WORK IS WEATHER PERMITTING.

**Other's Actions**

The town in which the project is located may need to approve permits and/or petitions filed by National Grid before the project can proceed

If the project is located in a non-National Grid pole set area, poles may need to be set by other utilities, e.g., Verizon. Time: varies, up to 3 months (depends on town, number of poles, etc)

**Scheduling (Status 50) and Construction Phase (Status 60) Target: 10 Weeks**

Site preparation, such as tree trimming and rock drilling, is performed by National Grid and field checks are conducted. Time: 2 weeks

The job is scheduled and any overhead construction (installation of wires, etc) is completed by National Grid as needed. Time: 4-6 weeks

The customer's transformer is delivered and set on a concrete foundation. Time: 2 weeks after the trench inspection is approved


Secondary cable is installed by the customer after the transformer has been installed by National Grid.








Primary underground construction is completed by National Grid. Construction may require a "planned outage." Time to install (or "pull" cable): 1 month

A municipal inspection must be scheduled by the customer and approved by the city or town wiring inspector.

National Grid energizes the new service and installs the electric meter. Time: up to 1 week

### III. How to Avoid Delays in the Construction Process: Key to “Hazard” Symbols on Flow Chart

The Flow Chart on the previous page shows Hazard Symbols like this  on some steps within the Complex Construction Process. These symbols indicate a step where, in our experience, **unforeseen issues** occur that can add time to the process or cause delays. We want your construction project to progress smoothly and without delays. Following is the key to each of these symbols.

- 1**  **Work Request Initiation:** A project cannot start until the entity requesting service has initiated a Work Request with National Grid. This is a critical first step upon which all other steps rely.
- 2**  **Submitting All Information Needed for Project Design:** We cannot design your service until all requested information has been received by National Grid. This information includes expected loads, one-line diagram, site plan, CAD file and a completed Easement Information Form. It is mandatory that the customer (or their agent) provide this information to National Grid so that the project can proceed to the design phase.
- 3**  **Congested Manholes:** Services involving underground infrastructure typically require that a manhole survey be conducted to determine whether sufficient space is available in manholes and conduits so that new infrastructure can be added. If sufficient space is not available, a more comprehensive design will be required which may add time and cost to the overall project.
- !**  **Submitting Paperwork and Payment Prior to Construction:** A project cannot proceed to construction until all required documents are executed (signed) by the customer and payment is received by National Grid.
- 4**  **Service Agreement:** This is one of the critical documents that must be signed by the customer and returned to National Grid before construction can be scheduled. Your Customer Fulfillment Representative will provide this document to you when it is ready for signature. The Service Agreement will confirm the cost for your new service. Additionally, the Service Agreement ensures that both you and National Grid understand and agree to the terms of electrical service at the location.
- 5**  **Payment:** If your project requires you to pay for your new service, an invoice will be sent to you separately. The invoice must be paid before construction can be scheduled. Note that this invoice is only for work performed by National Grid and does not include the cost of any electrical work that may be required inside your building. If the invoice is not paid within 30 days, the project estimate will expire and will be re-calculated, possibly resulting in a higher construction cost.
- 6**  **Easement:** A Grant of Easement (or “easement”) is one of the critical documents that needs to be executed (signed) and returned to National Grid before construction can be scheduled. If an easement is necessary, a representative from National Grid’s Real Estate Department will draft and send the easement (and any related legal documents) to the property owner for signature. The easement must be executed by the property owner, and all documents with original signatures (not copies) must be returned to the Real Estate representative before construction can be scheduled.

Please note these common easement considerations:

- ***Easements/Residential***
  - Please be sure your new subdivision plan has been recorded with the municipality.
  - Condos: Additional easement documentation is required, i.e. Master Deed, Declaration of Trust and any amendments related to the easement area.
- ***Easements/Corporate***
  - If the person designated to sign the easement is not an officer of the company, Votes or Certificates may be required before the easement can be legally executed.
  - If the executor of the easement lives out of state, please allow additional time for the easement to be signed.
  - If a corporation has dissolved, please ensure the deed was not missed when corporate assets were transferred.

- **Easements/Municipalities**
  - City Council/Board of Selectmen votes are often required for easements on municipal properties. It can take up to a month for an easement vote to be scheduled on a municipal agenda.
- **Easements – Common Mistakes/Concerns**
  - Deed copy submitted by customer lacks the plan, book and page numbers.
  - A copy of the recorded plan is not submitted to National Grid.
  - Easement Information Form is incorrect or incomplete.
  - Deed reference is incorrect.
  - Customer requests a design change after the easement is drafted, thus a new easement must be drafted.
  - The property already has easements for crossings (railroad, gas pipelines); therefore, these other utilities may also need to grant permission.
  - Death of one of the owners stated on the deed – A certified copy of the Death Certificate for the deceased party would need to be recorded with the Registry of Deeds within the county they reside, prior to signing and recording the Easement. Additionally, a petition may need to be filed in Probate Court for the deceased party.
  - Customer’s legal review may add time to the process.
  - Any subordination agreements must be executed by the customer’s lender and returned to National Grid.

**7 Environmental Requirements:** You may have limitations on land use that impact where a new service can be located. For example, an Activity Use Limitation (AUL) is a deed restriction placed on a contaminated property. Another example would be proximity to wetlands. If your property is in a wetlands buffer, you will need to provide us a copy of your Notice of Intent submitted to the local conservation commission, as well as the Order of Conditions issued to you.

**8 Trench Inspections:** Our trench inspectors need at least 3 days advance notice to inspect the trench and/or transformer foundation. It is the customer’s responsibility to contact the Trench Inspector to arrange for this inspection.

**9 Permits and Petitions:** Permits are needed for work such as excavation or pole sets along a state highway or municipal roadway. It is National Grid’s responsibility to apply for these permits from the state and local municipality prior to performing any work in the public way. Permits are typically reviewed and approved at municipal council or board meetings. The permit request must officially be on the City’s or Town’s meeting agenda in order to be eligible for review.

**10 Presence of Other Utility Infrastructure in the Public Way:** Permission to co-locate or traverse existing infrastructure to install electric service will be needed from any pre-existing utilities such as phone, cable, water, natural gas, railroad tracks, electric transmission towers, etc. It is National Grid’s responsibility to seek this permission.

**11 Weather Restrictions for National Grid Crews:** All of National Grid’s work is “weather permitting.” To protect our crews and to enable them to work safely, weather restrictions are in place which limit their ability to perform work in light or heavy precipitation, or when the temperature is below 10 degrees F or above 90 degrees F.

**a. Overhead Crew Limitations:** In light precipitation, National Grid’s overhead crews can perform emergency work and regular work that is de-energized. If it starts to rain steadily while our overhead crews are working, they will make the job site safe and restore any customers that may be without power before concluding their work.

**b. Underground Crews:** Can work in light precipitation.

**12 Town Approval:** The ability for National Grid to begin construction of your project within your town maybe impacted by the following:

**a. City Council or Selectboard Hiatus:** Towns often take a hiatus during summer months, so fewer hearings (where petitions are approved by the town) occur during this timeframe.

- b. Paving moratoriums are often enacted by municipalities from mid-November to mid-April. Special permission is required by the municipality to excavate in public streets during the moratorium period. Additionally, if a street has been paved in the last 5 years, a community may withhold permission from National Grid for digging in the street. It may be necessary for National Grid to draft a “hardship letter” requesting the town to make an exception.

**13 Utility Pole-Set Area:** National Grid and Verizon share installation and ownership responsibilities for utility poles across our mutual service area. If your project requires pole installations or upgrades, your Customer Fulfillment Representative will inform you if National Grid or Verizon has the responsibility for installing or upgrading the poles. If Verizon is responsible for setting the poles for your project, it is your responsibility to arrange this work directly with Verizon. Please be aware that other utilities may charge you separately for any work they perform on your project.

**14 Site Preparation:**

- a. Sometimes trees need to be trimmed or removed to clear the way before new overhead poles and wires can be installed. If the trees are located on private property, the property owner is responsible for trimming the trees. If the trees are located in the public way, National Grid must seek permission from the town for trimming or removing the trees.
- b. If ledge is encountered on the property, additional time may be needed to remove it (rock drilling) or design the electric service around it. If the ledge is located on private property, the property owner is responsible for removal. If the ledge is located in the public way, National Grid must seek permission from the town before working in the public way.
- c. Environmental remediation may be required before our crews can safely enter and work in manholes. For example, if sewer or another contaminant is leaking into a manhole, this must be remediated before our crews can enter it. If private property needs to be remediated, the property owner is responsible for the remediation. If property in the public way needs to be remediated, National Grid must seek permission from the town before working in the public way.

**15 Condition, Location, and Capacity of Existing Infrastructure:** Depending on the needs of your new service, National Grid’s “mainline” infrastructure, including substations, may need to be upgraded, so that there is ample capacity to handle new electrical loads. If National Grid infrastructure is not in close proximity to the location needing new service, new infrastructure must be extended a distance to reach the new service point. These considerations can increase the scope, time and construction cost needed to provide you service.

**16 Material Availability:** If special, non-stock, electrical equipment is needed for your project or if large quantities of material are needed, these items may need to be special ordered and/or have a lead time before they are available.

**17 Planned Outages:** Some of our construction work requires that National Grid take a power outage (planned outage) in order to safely connect a new service. If a planned outage is required for your project, it will add 2 to 4 weeks to the schedule so that any impacted customers can be notified in advance.

**18 Municipal Inspection:** We cannot energize your new service until we have received an approved municipal inspection. The electrician installing the new service is responsible for requesting this inspection by calling the town’s wiring inspector. The wiring inspector is then responsible for notifying National Grid that the new service has passed inspection. This is often referred to as “calling in a wiring / municipal inspection.”



#### **IV. Additional Considerations That May Cause Delays**

**Service Complexity:** Depending on the size and type of facility being served (e.g., strip mall, large industrial park, office building, manufacturing facility,) and whether overhead or underground construction (or both) are needed, more work and therefore more time may be required to engineer and build the service. If an existing service is being upgraded, the main switch size must be evaluated by your electrical contractor to determine whether it can accommodate additional electric load or whether a new (larger) main switch must be installed.

**Time of Year:** The time of year during which your project requires construction can impact how quickly we can complete our work. Construction season is busiest in spring and summer. An “end of season” rush often occurs in the fall, when developers look to complete projects prior to municipal paving moratoriums going into effect (mid-November.)

**Storms or Other Emergencies:** Restoring power to our customers is the first priority for our crews during storms or other emergencies, such as motor vehicle accidents. Regular customer work is typically suspended until all power outages are restored. Live wires down or a fire are other emergency situations that require National Grid crews to leave a worksite to respond immediately to ensure public safety. Occasionally, Massachusetts crews are deployed to neighboring states to support emergency restoration efforts in those regions.

**Dig Safe Considerations:** In Massachusetts, Dig Safe must be contacted (dial 811) prior to any excavation. Construction may not begin until 72 hours after Dig Safe is contacted and a Dig Safe number is issued. In Massachusetts, construction work must start within 30 days from the date a Dig Safe number is issued. If construction is not started within 30 days, the DigSafe number must be renewed. Dig Safe numbers are valid indefinitely, provided that 1) the DigSafe marks are maintained, and 2) the work is continuous.

**Distributed Generation (Solar / Wind / CHP):** If your building will be partially served by solar panels, wind turbines or combined heat and power units (CHP), special electrical protection requirements must be met which will entail additional engineering and construction time.

**Strikes/Work Stoppage:** Since the utility work force (crews) is typically represented by labor unions, work stoppages are possible, particularly near labor contract end dates.

## **V. Frequently Asked Questions (FAQs)**

Status 10 / Preliminary Phase: Obtaining a Work Request from National Grid and providing your detailed power requirements to us

**Q1: What is a Work Request?**

**Q2: How do I initiate a Work Request?**

**Q3: What if I don't want to share my personal or account information for my contractor to get a Work Request Number?**

**Q4: Who at National Grid will help guide me through the process?**

**Q5: What information will I need to provide for my Work Request to get started?**

**Q6: Why is an Easement needed?**

**Q7: What happens after I submit the Easement Information Form?**

**Q8: Where can I find National Grid's Specifications for Electric Installations?**

**Q9: What if I have solar, wind, or any other type of distributed generation in my project?**

Status 20 to 40 / Design & Engineering: Designing your new electric service and determining the cost of your project

**Q10 What happens after I submit all requested information to National Grid?**

**Q11 Can I meet with National Grid to review my design?**

**Q12 I learned that my project requires a manhole survey. What does that mean?**

**Q13 What if I don't have a survey plan in AutoCAD?**

**Q14 Why does my municipality have to approve the design of my project?**

**Q15 When can I expect the final design for my project to be completed?**

**Q16 Will I have to pay for the work required to install or upgrade my service?**

**Q17 Why do I have to pay National Grid for this construction work?**

**Q18 How is the cost of my project calculated?**

**Q19 What do National Grid's construction costs include?**

**Q20 Why do I have to pay taxes as part of my construction costs?**

Status 40, 50, 60 / Project pre-check, scheduling and construction: Building and energizing your new service

**Q21 Why do I have to have work performed on my private property inspected by National Grid?**

**Q22 When will my project be scheduled for construction?**

**Q23 How long will it take National Grid to construct my new service?**

**Q24 Can I check the status of my project online?**

**Q25 Who provides the transformer for my new service?**

**Q26 When will my new service be energized?**

**Q27 What happens if I need to delay my project?**

## Answers to FAQs

### Status 10 / Preliminary Phase: Obtaining a Work Request from National Grid and providing your detailed power requirements to us

#### Q1 What is a Work Request?

A Work Request is the term that refers to your request for new or upgraded electric service from National Grid. Each Work Request is assigned a unique number. The Work Request Number allows you and your contractor to track your project's progress when discussing it with National Grid. It is critical that you initiate a Work Request as soon as possible to allow your project to be quickly & easily identified. Please keep your Work Request Number available for all interactions to help expedite your project.

For projects that are in a speculative stage, an Investigation Work Request will be created to determine the electric capacity/availability in a particular location.

#### Q2 How do I initiate a Work Request?

You or your electrician can initiate a Work Request either by calling National Grid or by completing an online form as follows:

- **Phone (Mon-Fri 7:00a.m to 4:00p.m): 1-800-375-7405** – please select option 2 for “upgrades or new construction projects.”
- **Online:** An electronic copy of the form to request a new or upgraded service can be found at the following link: <https://www.nationalgridus.com/media/trade/ma-and-ri-new-electric-service-request-form.pdf>. Please email the completed form to [workrequest@nationalgrid.com](mailto:workrequest@nationalgrid.com).

For security reasons, one of these pieces of information is required to initiate a Work Request:

- Your National Grid Customer Number
- The last 4 digits of your Social Security number
- Your National Grid Account Number
- Your business' Federal Tax ID Number

Typically, you will receive a Work Request number after providing the necessary information to a National Grid Work Request Initiation Representative. For online requests, a Work Request number will be issued one to three days after the e-mail is received.

#### Q3 What if I don't want to share my personal or account information for my contractor to get a Work Request number?

If you do not wish to provide personal or account information with your contractor, you can obtain a Customer Number to share as an alternative by calling National Grid Customer Fulfillment at **1-800-375-7405**. In order to get a Customer Number, you need to be an authorized person on the account, meaning that you will have to verify the social security number or tax id number, mailing address and phone number associated with the account. Your contractor can then use your Customer Number to initiate the Work Request as stated above.

#### Q4 Who at National Grid will help guide me through the process?

A National Grid Customer Fulfillment Representative (CF Rep) will be assigned to work with you through the lifecycle of your project. They will provide you with their name, email, telephone number, etc.

#### Q5 What information will I need to provide for my Work Request to get started?

Once your Work Request Number has been issued, a National Grid Customer Fulfillment Representative will contact you to determine your project needs and will send you a Proposal for Electrical Service package (PES). The following forms must be completed and returned to National Grid in order for your Work Request to start:

- **Customer & Load Information Form** - Please fill out this form accurately and completely in order to avoid unnecessary delays to your project or plans. National Grid needs this information to design and build an electric system to meet your power requirements.
- **Easement Information Form** - Many new service installations or upgrades require that we install our equipment on private property. The Easement Information form provides National Grid with the property owner's contact information and deed references so that a Grant of Easement can be drafted to authorize our equipment installation. Please include your phone number(s), email address and provide a copy of your property deed and stamped site plan when completing this form.
- **An electronic copy of a municipality approved Stamped Site Plan – CAD file (.dwg format – AutoCAD 2010 or older)** may be required by certain municipalities. If one is required, it must show the parcel's topography, paved areas, property lines, public ways and underground water/sewer/gas piping. The electronic copy of the site plan will be used by National Grid to design your new electric service.
- **A one line diagram indicating the main switch size and number of meters** - A One-line Diagram is needed so that National Grid can adequately size the new or upgraded service.
- **Order of Conditions or Notice of Intent** – This documentation indicates whether any environmental issues exist on the property or a notice of intent for a subdivision exists. It is required by National Grid so that we can ensure compliance with the Massachusetts Wetlands Protection Act.
- **Meter Socket Labeling** – If multiple meters exist at a location, please provide a list of how the meter sockets will be labeled for each premise for future identification purposes.

#### **Q6 Why is an Easement needed?**

An easement (or officially a "Grant of Easement") may be required from the property owner, at no cost to National Grid, so that National Grid can construct, install and maintain our equipment on private property.

#### **Q7 What happens after I submit the Easement Information form?**

National Grid's Real Estate Department will draft a Grant of Easement for the property owner to execute (sign) and will include the Real Estate representative's name along with detailed handling instructions. Before the project can be scheduled for construction, the original Grant of Easement must be returned to National Grid for recording at the Registry of Deeds.

#### **Q8 Where can I find National Grid's Specifications for Electric Installations?**

Note the following weblinks:

- Specifications for Electrical Installations:  
<[https://www.nationalgridus.com/non\\_html/shared\\_constr\\_esb750.pdf](https://www.nationalgridus.com/non_html/shared_constr_esb750.pdf)>
- Electrical Specification Errata and Revisions:  
<[https://www.nationalgridus.com/non\\_html/constr\\_errata.pdf](https://www.nationalgridus.com/non_html/constr_errata.pdf)>
- Underground Residential Development (URD) Installation & Responsibility Guide:  
<[https://www.nationalgridus.com/non\\_html/shared\\_constr\\_esb759A.pdf](https://www.nationalgridus.com/non_html/shared_constr_esb759A.pdf)>
- Underground Commercial Development (UCD) Installation & Responsibility Guide:  
<[https://www.nationalgridus.com/non\\_html/shared\\_constr\\_esb759B.pdf](https://www.nationalgridus.com/non_html/shared_constr_esb759B.pdf)>

Hard copies of any of the above listed documents can be obtained from your assigned National Grid Customer Fulfillment Representative.

#### **Q9 What if I have solar, wind or any other type of distributed generation in my project?**

Refer to our website dedicated to distributed generation:

[https://www9.nationalgridus.com/masselectric/home/energyeff/distributed\\_generation.asp](https://www9.nationalgridus.com/masselectric/home/energyeff/distributed_generation.asp)

You may also send any specific questions on DG projects to [Distributed.Generation@nationalgrid.com](mailto:Distributed.Generation@nationalgrid.com).

Emails received at this address are responded to daily by our Distributed Generation specialists.

Another helpful reference on DG:

Supplement to Specifications for Electrical Installations – Requirement for Parallel Generation Connected to a National Grid owned EPS (Electric Power System) Electric System Bulletin No.756

[https://www9.nationalgridus.com/non\\_html/shared\\_constr\\_esb756.pdf](https://www9.nationalgridus.com/non_html/shared_constr_esb756.pdf)

## **Status 20 to 40 / Design and Engineering: Designing your new electric service and determining the cost of your project**

### **Q10 What happens after I submit all requested information to National Grid?**

Once all required information has been received by your Customer Fulfillment Representative, you will be assigned a National Grid Design Investigator who will contact you to discuss your electrical service. Some requests for new electric service qualify for the “National Grid Connects” program. For these simple services or service upgrades, no engineering or designing is required.

Your National Grid Customer Fulfillment Representative will tell you if your project qualifies for the “National Grid Connects” program.

### **Q11 Can I meet with National Grid to review my design?**

Your National Grid designer will contact you to schedule a “site meeting.” During the initial site meeting, your responsibilities as well as National Grid’s responsibilities will be outlined. While a preliminary design may be discussed at this meeting, further investigation (e.g., a “manhole survey”) is typically needed before a design can be completed. Site meetings are a critical step in the process for exchanging the necessary information that will enable your project to be designed and constructed. Therefore, we strongly recommend that your electrician and any other decision makers for your project (such as your builder or contractor) attend these meetings. This will help the National Grid Designer understand any unique aspects of your project. Having all decision makers at this initial meeting will help your project to be designed correctly the first time.

Depending upon the complexity of the project, multiple site meetings may be required to discuss the project design. These meetings will help our Designer to create the best design for the project and are an opportunity for you to ask any project related questions.

### **Q12 I learned that my project requires a “manhole survey.” What does that mean?**

National Grid may need to conduct a survey of any manholes near the location of your project to determine whether our existing underground infrastructure can accommodate your project needs. In some cases, the existing infrastructure must be upgraded to accommodate more or larger cabling or equipment. If a manhole survey is necessary, it must be completed before the Design Engineer can design your new electric service.

### **Q13 What if I don’t have a survey plan in AutoCAD?**

If you do not have a surveyed plan in AutoCAD or if the construction work required in the public way extends beyond the surveyed area, National Grid will commission a civil survey to draft an AutoCAD file. Please note that a civil survey of the area will add extra design time to the project.

### **Q14 Why does my municipality have to approve the design of my project?**

All Departments of Public Works (DPWs) have jurisdiction over their town’s public ways. Therefore, if the design of your project requires underground infrastructure to be installed in the public way, then National Grid must submit a Proposed Plan to the Department of Public Works (DPW) for their approval. The DPW may approve the plan as is or they may require changes to the plan. Once the DPW approves the Proposed Plan, National Grid must then file a petition and request a hearing with the City Council or Town’s Board of Selectmen for final approval and permission to dig in the public way.

### **Q15 When can I expect the final design for my project to be completed?**

Your National Grid Designer will give you an estimated timeframe for completing the design of your new service. The timeframe is typically proportional to the complexity of your project and dependent on a number of factors, for example:

- Whether a manhole survey is required
- Whether the local DPW must approve any work required in the public way
- Whether easements are required for any electrical equipment to be installed on private property

Once the project has been designed and all pre-construction requirements have been completed, you will receive your final design.

#### **Q16 Will I have to pay for the work required to install or upgrade my service?**

Your National Grid Customer Fulfillment Representative will determine if you need to contribute to the cost of construction for your new service. The cost for National Grid to construct your new service will be evaluated along with the additional distribution revenue we expect to receive as determined by your electrical loads. You will be given a credit for any incremental distribution revenue that is generated.

If you pay in advance for an Engineering Study (only for highly complex services), this fee will also be credited toward any applicable construction advance.

Note that National Grid's costs do not include any electrical work that may be required inside the building on the customer's side of the electric meter.

#### **Q17 Why do I have to pay for this construction work?**

National Grid, like all other investor owned utilities in Massachusetts, is regulated by the Department of Public Utilities (DPU). To maintain the lowest possible electric distribution rates, the MA DPU approved electric rates do not include the costs for customers to install new or upgraded electric services.

#### **Q18 How is the cost of my project calculated?**

National Grid uses a formula approved by the MA DPU to determine if a customer must contribute towards their construction costs. Factors in the formula include National Grid's estimated construction cost; any additional annual distribution revenue that is expected as a result of the new service/service upgrade, as well as any associated tax liabilities. Because each job is unique, customer costs will vary. A "construction advance" (i.e., payment from the customer in advance of construction) is needed when the investment that National Grid is making to serve a project exceeds the revenue expected from the project.

#### **Q19 What do National Grid's construction costs include?**

Construction costs include labor and materials, equipment installation and/or removal, operations and maintenance, as well as associated taxes.

#### **Q20 Why do I have to pay taxes as part of my construction costs?**

The Internal Revenue Service has determined that any "Contribution In Aid Of Construction" (CIAC) paid to an investor-owned utility such as National Grid is considered income and is therefore taxable. The amount of income tax that National Grid will be required to pay on any CIAC associated with your project is calculated using an annual tax factor provided by the IRS. This tax is collected as part of the customer's payment in advance of construction, as required by the MA Department of Public Utilities (DPU.)

Additionally, if your project requires you to install new civil infrastructure on private property (such as a concrete ductbank and/or transformer foundation), you will also need to pay what's known as "tax on donated property." Although this infrastructure is not installed by National Grid, it ultimately is "donated" by the customer to National Grid, who then owns and maintains the infrastructure after the new service is energized. Donated property is considered income to the recipient (National Grid) and is therefore taxable. The same rules apply as above – National Grid is required to collect this tax as part of the construction advance.

Please note that these tax policies apply to all customers including tax-exempt organizations such as municipalities.

#### **Status 40, 50, 60 / Project precheck, scheduling and construction: Building and energizing your new service**

#### **Q21 Why do I have to have work performed on my private property inspected by National Grid?**

A National Grid trench inspector will be assigned to your project to ensure all electric trenches and transformer

foundations installed on your property adhere to National Grid's installation requirements, since National Grid will be responsible for owning and maintaining this infrastructure once the new service has been energized. Please call **1-800-375-7405** to coordinate all required trench, transformer foundation, and ground grid inspections. National Grid requires a minimum of three days' notice to schedule inspection(s).

#### **Q22 When will my project be scheduled for construction?**

Your project will be placed on National Grid's construction schedule after we receive your signed Service Agreement, executed (signed) Grant of Easement, and any required payment. We are not able to schedule a project for construction until all three of these items are received.

Prior to construction, a National Grid Operations Supervisor will "pre-check" the site to ensure construction readiness. This pre-check is required to avoid potential unsafe conditions and to ensure the job is ready for National Grid crews to begin their work.

#### **Q23 How long will it take for National Grid to construct my new service?**

National Grid will always make every effort to complete your project in the minimum amount of time possible; however, construction duration varies by job scope and complexity. It should be noted that complex construction projects can take up to 40 weeks or longer to complete.

We advise customers to check in regularly with their National Grid Customer Fulfillment Representative for timeline updates.

#### **Q24 Can I check the status of my project online?**

National Grid does not currently offer an automated method to enable you to check on your project status; however, we are in the process of developing one. Until an automated method is available, please check in regularly with your assigned National Grid Customer Fulfillment Representative for status updates and to ensure that we have everything needed to keep your project moving forward.

#### **Q25 Who provides the transformer for my new service?**

National Grid will deliver a transformer to your site when your transformer foundation is ready and your electrician is ready to install secondary cable. If the design plan calls for one or more utility poles to be installed, National Grid will set the pole(s) also. If the design calls for utility poles to be installed in a Verizon set area, National Grid will notify Verizon that this work is required.

#### **Q26 When will my new service be energized?**

Your service will be energized by National Grid once the Municipal Wiring Inspection approval has been received. Local building codes require licensed electrical contractors to perform all building electric work. Licensed electrical contractors are expected to initiate permits and have their work inspected by the Municipal Wiring Inspector. Once your secondary cable and internal electrical service work have been completed, your electrician will request an inspection from your local municipality's Wiring Inspector. Once the Municipal Inspector inspects the newly installed service components, they will contact National Grid to confirm that the service can be energized.

National Grid must receive inspection approval directly from the Municipal Wiring Inspector prior to energizing the electric service. These inspection and certification requirements are to ensure the safety of your service. Once you or your electrician know that the Municipal Wiring Inspection has been approved for your service, please call National Grid at **1-800-375-7405** to confirm that we have received authorization directly from the Municipal Inspector.

#### **Q27 What happens if I need to delay my project?**

If for any reason you cannot start your project within one year of initiating a Work Request with National Grid, you may cancel it. If you want to reinstate a project, you need to apply for a new Work Request again and the same process would start from the beginning. Additionally, if a customer's Work Request is inactive for more than 6 months, National Grid reserves the right to cancel it.

## VI. Construction Definitions

### Definitions of Terms Used for National Grid's Complex Construction Process

- 1. Bollards:** Concrete filled pipes that are installed to protect National Grid equipment such as padmounted transformers and switchgears from vehicular damage. National Grid will determine the number, type (e.g., galvanized or steel), and location of bollards taking into account the equipment's proximity to traffic and buildings, etc.
- 2. CAD (Computer Aided Design) file:** Some municipalities require developers requesting new electric services to provide an AutoCAD-compatible digital drawing file (.dwg file format) known as a "CAD file." This electronic drawing should indicate where property lines are located, the topography of the parcel, any paved areas, sidewalks, public ways as well as any underground water, sewer, drainage, electric, and other utilities for the property or area requesting new electric service. The CAD file is also used by National Grid to design and lay out the infrastructure required to provide the new service.
- 3. Civil work or civil construction:** Work performed to install any underground infrastructure, such as conduit, ductbanks, manholes, etc. If civil work is performed on private property, the property owner is responsible for performing the work. National Grid is responsible for performing civil work in the public way. Once civil work has been completed, National Grid is responsible for installing the electric cable into the civil infrastructure whether it is located on private property or in the public way.
- 4. Civil survey (or land survey):** A field survey performed by National Grid to view all utilities located within the public way, both above and below ground. The survey is performed to determine the location of utilities in relation to road access, property lines, buildings, and other features. The survey results are digitized into an AutoCAD file (.dwg file format) by a licensed surveyor to assist National Grid's engineering, legal, real estate, permitting, and operations personnel in designing new services. In some municipalities, National Grid is required to provide a surveyed design showing all utilities before the town will grant National Grid permission to work in a public roadway.
- 5. Contribution in aid of construction (CIAC) or construction advance:** The customer payment required to cover National Grid's construction costs after a credit is given based on the additional annual electric usage from their new or upgraded service (distribution revenues only). This payment is also known as a "Construction Advance" as the customer is required to pay the CIAC in full before construction can begin. Note that this payment is only for work to be performed by National Grid and does not include the cost of any service work that may be required on the customer's side of the electric meter.
- 6. Crew:** the naming convention for the vehicle and personnel that are dispatched to install, maintain or perform work on National Grid's infrastructure (e.g., overhead, underground, line, tree, contractor.)
- 7. Customer Fulfillment:** The name of the department at National Grid that has responsibility for managing customer requests for new or upgraded electric services. Customer Fulfillment Representatives (aka "CF Reps") are the National Grid employees who work with external customers, electricians, builders, developers, etc. to progress their requests for service from initiation to completion.
- 8. Customer:** The entity who receives or is looking to receive electric service from National Grid. The customer will eventually be the monthly bill recipient. Customers may hire an agent/contractor to coordinate the electric service on the customer's behalf.
- 9. Design engineer or design investigator or designer:** The person from National Grid that designs your new electric service or service upgrade.
- 10. DPU or Department of Public Utilities:** The MA DPU is responsible for the oversight of investor-owned electric power and natural gas utilities such as National Grid. The DPU approves National Grid's rate tariffs and construction policies. The mission of the DPU is to ensure that utility consumers are provided with the most reliable service at the lowest possible cost.
- 11. Demo request:** A request for National Grid to disconnect an existing electric service so that the facility which it is serving can be demolished. A Demo Request must be made separately from any other Work Request.



- 12. Design fee:** A fee that is charged by National Grid to perform an Engineering Study to evaluate service options prior to a customer committing to moving forward with a project and applying for a Work Request. If the customer moves forward with a Work Request, the design fee is credited towards any construction cost for the new service.
- 13. DigSafe:** Calling DigSafe (x811) is a state law and therefore a requirement for anyone who is digging or excavating on property. When a DigSafe is “called in”, participating utility companies are notified that someone plans to dig in a particular area. In turn, the utilities (or contractors working on their behalfs) respond by marking the location of their underground facilities which are in the area where the digging will take place. Since the depth of utility lines varies, multiple utility lines may be in or near the area to be excavated. Calling 811 will help to avoid utility service disruptions and ensure the safety of those digging, as well as avoid any fines and repair costs.
- 14. Distributed generation (DG):** On site generation that is an alternative source of power such as solar panels, wind turbines or combined heat and power (CHP) units.
- 15. Ductbank:** Typically 2 or more conduits buried in a trench or located in concrete encased housing for the purpose of running underground electric cable.
- 16. Easement (or “Grant of Easement”):** A legal document granting National Grid the rights to construct, install, maintain and access its equipment on a customer’s private property. Your project’s service may include underground and/or overhead equipment such as manholes, conduits, cables, utility poles and overhead wire. The Grant of Easement must be executed (signed) by the property owner and returned to National Grid. National Grid cannot schedule nor perform work on private property until an easement (i.e., permission) is granted by the property owner.
- 17. Easement Information Form:** Customers requesting electric service from National Grid must complete and return an “Easement Information Form” to National Grid. This Form requests information about the private property on which the new electric service will be built so that National Grid can draft a “Grant of Easement” for the property owner to sign.
- 18. Engineering study:** A study performed by National Grid to review the impact that the proposed installation of a new electric service will have on the electric distribution system. Studies are typically needed only for larger and/or more complex services. If a study is needed, the customer is responsible for paying the study costs (aka “Design Fee”) in advance. If the customer moves forward with a request for service once the study has been completed, the customer’s engineering study payment (Design Fee) will be applied towards the construction cost of the new service.
- 19. Feeder:** Another name for a primary high voltage electrical circuit
- 20. Field check (aka “pre-check”):** A site visit by National Grid crews to check field conditions prior to beginning any construction.
- 21. Foundation:** A rectangular concrete structure, also called a “pad,” that is designed to support large transformers and switch gears. If a foundation is required on private property, the customer is responsible for building the foundation to National Grid’s specifications.
- 22. Ground Grid:** This is electrical grounding that is located in the earth around electrical equipment such as padmount transformers, switchgear manholes, etc. and built to National Grid’s Specifications. The purpose of a ground grid is to provide a safe, low-resistance alternate path to earth for electrical equipment during normal or fault conditions.
- 23. High Tension:** Refers to electrical cable that can operate at high voltage. The abbreviation “HT” is used when referring to certain National Grid underground circuits, particularly in the City of Worcester.
- 24. Invoice:** Paperwork issued from National Grid’s billing operation in Syracuse, NY, for any customer payment (CIAC) required. The full CIAC Payment shown on the invoice must be received before construction can be scheduled.

**25. Job status (aka “Work Request Status”):** The “status” of a job or Work Request indicates how far along the job has progressed from start to completion.

**Status 10 – Preliminary Phase**

**Status 20 – Design / Engineering**

**Status 40 – Pre Construction**

**Status 50 – Scheduling**

**Status 60 – Construction**

**26. Loads (short for “electric loads”):** In order to provide enough electricity for your new service, we need to understand what electrical equipment will be installed in your facility. The “load” refers to how much power is consumed by each piece of electrical equipment that will be installed. Loads are generally broken down into categories such as lighting, general heating, water heating, cooling/air conditioning, motors, elevators, air compressors, welding, office equipment and miscellaneous. In particular, we need to know if any “non-standard” electrical equipment will be installed, such as industrial welders, or any other type of manufacturing equipment that may draw a lot of electricity in a short amount of time. Your electrician or electrical contractor will be familiar with this term and is typically the one who will provide the load information to National Grid.

**27. Main switch size:** This indicates the size of the electrical service to a facility as measured in amperes (or “amps.”) For example, the main switch size for a typical residential service is “200 amps.” If the premise has multiple meters (e.g., an apartment complex), the main switch size would be for the entire structure, not just an individual unit.

**28. Mainline infrastructure:** A utility’s primary electrical infrastructure that begins at a substation and that distributes electricity along “feeders” to smaller branches known as “side taps.”

**29. Manhole:** A structure typically located in a street and through which National Grid workers safely access various company assets that are located underground for the purpose of installing new equipment or maintaining/repairing existing infrastructure.

**30. Manhole survey:** A manhole survey is performed to assess the existing conditions within a manhole to determine if it can be used to provide additional electric service. The crew performing the survey will record construction features, include any incoming and outgoing conduits available for use in the manhole as well as existing underground cable condition and the size of the manhole, etc.

**31. Mat & Fence:** A type of substation design on private property that includes a concrete transformer foundation (or “mat”) and is surrounded by a fence. This is an older substation design that is still maintained by National Grid but is no longer used for new construction.

**32. Meter or electric meter:** a device owned by the electric utility and typically installed on the side of a building or on a transformer to measure the amount of electricity used within that facility.

**33. Moratorium:** A suspension of construction activity dictated by a city or town typically during the winter season when construction in the public way is more difficult.

**34. Municipal wiring inspection (aka “muni inspection” or “wiring inspection”):** The final inspection required by National Grid prior to energizing a new service. Municipal Inspectors that work for the town are responsible for ensuring that the new wiring on the customer’s side of the electric meter complies with all applicable codes and Company requirements.

**35. Network service:** A highly reliable electric service featuring multiple interconnected supply sources. “Spot” networks are used in buildings with heavy energy use and feature redundant sources of power. Networks are typically found in metropolitan, urban or downtown areas. Given the redundant and therefore highly reliable nature of a network service, it is typically more expensive and takes longer to build than a standard “radial” service. Depending on complexity, a network service could take 12 months or more to build. Refer also to the definition for “Vault.”

- 36. Non-standard Service:** Cost of work and/or facilities required in excess of those which are necessary to meet the customer's electric distribution service requirements.
- 37. One-line (or "1-line") diagram:** An engineering diagram that uses lines and symbols to indicate the path and components of an electrical circuit.
- 38. Order of conditions:** A type of permit issued by a city or town's local Conservation Commission which regulates all work to be performed in any area that is under their jurisdiction. This is a very restrictive permit designed to protect the environment and is issued in accordance with the Massachusetts Wetlands Protection Act.
- 39. Overhead construction:** Construction that is located above ground and features equipment attached to wood utility poles. This equipment may include high voltage wire (>480Volts), low voltage wire (<480 volts), cross arms and other pole mounted equipment such as insulators, overhead transformers, fuses, switches, capacitors, streetlights, etc. – all installed as part of the electric distribution system that delivers power to homes and businesses.
- 40. Planned outage (or scheduled outage):** A power outage that is scheduled by National Grid in order to install new infrastructure or to maintain existing equipment. National Grid is required to notify affected customers in writing seven days prior to a planned outage in order to allow them time to prepare for the inconvenience. Planned outages can last between four and 12 hours. The notification sent to impacted customers will indicate how long the planned outage will last, as well as alternate dates in the event of bad weather.
- 41. Pole petition:** Before a new pole is set on public/City/Town property, National Grid applies for permission to set the pole from the City Council or Town Board of Selectmen. An approved pole petition ensures that the new poles are installed in accordance with the City or Town's public requirements.
- 42. Pole set area:** National Grid and Verizon jointly own the vast majority of utility poles. National Grid has primary responsibility for installation and maintenance in some communities while Verizon has that responsibility in other communities. In some cases, National Grid and Verizon each are responsible for different areas within the same community. These communities/areas where National Grid and Verizon are the primary pole custodians are referred to as "pole set areas." The custodian for each municipality (e.g., either National Grid or Verizon) has the responsibility for setting and maintaining the utility poles within their "pole set area."
- 43. Policy 3:** National Grid's Line Extension Policy which applies to complex electric services for commercial and industrial customers. This policy explains how the customer's cost for a new service (if one is required) is calculated. It should be noted that the policy also explains the circumstances by which the customer can request that National Grid determine if a refund of all or a portion of the original customer payment is warranted.
- 44. Pre-check:** A site visit by National Grid crews to check field conditions prior to beginning any construction.
- 45. Primary cable:** Primary cable is high voltage cable (greater than 600 volts) that extends within National Grid's distribution system to the transformer that ultimately feeds the building's secondary cables. Primary underground cable is typically installed in underground conduit.
- 46. Proposal for Electric Service (PES) package:** This package outlines all information a customer is required to provide so that National Grid can design and construct the new electric service.
- 47. Public way:** Any street or highway that is open to the public and is controlled and maintained by some level of government. This includes, for example, interstate and state highways and municipal roads and streets.
- 48. Pulling cable (or "installing cable"):** This is a term that is used to describe the installation of electric cable within underground infrastructure (e.g, conduit, manholes, etc.) When existing conduit and manhole infrastructure is utilized, older cable may need to be removed ("pulled out") before the new or upgraded cable is installed ("pulled in.")
- 49. Revenue Justification:** National Grid uses a formula approved by the MA DPU to determine if a customer must contribute towards their construction costs. One of the factors in the formula accounts for any additional annual distribution revenue that is expected as a result of the new service/service upgrade. The application of this factor is called "revenue justification."

- 50. Right of way (or “R-O-W”):** A right to pass across another’s land, whether by law or by convention, by foot, by vehicle, etc. A right of way may be a specific grant of land or an “easement.” One common example of a “right of way” is the area underneath a utility’s large transmission towers.
- 51. Riser pole:** A wood utility pole which holds the infrastructure for an underground service. Electric cables extend from the top of a “riser pole” through a long metal casing attached to the side of the pole and then continue underground to the service point. Riser poles can typically be identified by this long metal casing.
- 52. Secondary cable:** Secondary cable is the cable that is installed by the customer or customer’s contractor from the facility taking service to the transformer location.
- 53. Service agreement:** Establishes the terms and conditions of the electric service as well as the entity responsible for paying the monthly electric bill once service is established.
- 54. Service point (or “point of demarcation”):** the point where the utility’s wiring ends and the customer’s wiring begins.
- 55. Service upgrade:** Any change to the customer’s existing internal building wiring.
- 56. Siphon service:** Electric service that travels down a wood pole into conduit and continues underground to a customer’s building or to a padmount transformer.
- 57. Site plan:** Construction plans that are stamped by a Professional Engineer and approved by the municipality.
- 58. Step zero:** A term used to indicate the status of new projects large enough to require attention and planning before a Work Request is issued. Since it is prior to the first step of the process of having a Work Request issued, it is called “Step Zero.”
- 59. Subordination agreement:** A Subordination Agreement is requested of all property owners who have outstanding mortgages and who are having an underground electric system installed that will be owned and maintained by National Grid. It is a legal document which states that the mortgage company agrees to take the National Grid Easement as first in line. The Easement is treated as though National Grid had obtained its “Easement Rights” prior to the mortgage holder obtaining its “Mortgage Rights”. It offers National Grid more protection in the event of a foreclosure on the property. It is not likely that a mortgage holder would request National Grid to remove electric equipment (in the event of foreclosure), but legally they could.
- 60. Switchgear:** A large green metal box containing multiple power sources and devices that allow National Grid workers to “switch” or reroute the power flow from one set of underground cables to another during power outages or while performing system maintenance work. Switchgears are often located near or in parking lots and are protected by yellow concrete bollards.
- 61. System improvement:** This term refers to National Grid work that is associated with increasing the capacity or reliability of the electrical distribution system. It is work performed over and above the work required to provide service to the customer. The cost for system improvement is National Grid’s investment and is not included in the customer’s construction costs.
- 62. Temporary (or “Temp”) Service:** An electric service that is installed on a temporary basis until the permanent electric service can be built. For example, a temp service is often a small 100 amp 120/240 volt overhead electric service constructed relatively quickly as an interim solution for getting power to a facility until the desired permanent electric service can be installed. A temp service requires its own Work Request number (separate from the Work Request number for the permanent service). Fees for temp services are also separate from any construction advance costs for the permanent service and must be paid prior to being energized. Temp services are typically disconnected and removed once the permanent service has been installed.
- 63. Transformer:** An electrical device used to transform high voltage into a lower voltage for use by customers. Overhead transformers are typically large silver metal “cans” mounted at the top of utility poles. Underground or padmounted transformers are typically large green metal “boxes” that sit on concrete foundations. Like switchgears, padmounted transformers are often located in parking lots or near the facility they are serving and are protected by yellow concrete bollards installed by the customer.

- 64. Trench Inspection:** An inspection performed by a qualified and trained National Grid employee (“Trench Inspector”) to approve civil work being performed by the customer on private property. Civil work on private property needs to be performed to National Grid’s standards and approved at various stages of the installation. This work may include the digging a trench, installation of underground conduit / ductbank, hand holes, pull-boxes, duct-structure, manholes, transformer foundations, etc. It is mandatory that any trench, conduit or vault installation and all other customer civil work be inspected & approved by a National Grid Trench Inspector prior to being backfilled. New underground electric services cannot be installed and energized until the concrete encased duct bank constructed to house the cables is covered and the trench backfilled.
- 65. Twins:** This term refers to a temporary, overhead, electrical cable arrangement used for restoring power to an electric service that is out due to an underground cable failure. This practice has been discontinued as it no longer meets National Electric Safety Code (NESC) requirements.
- 66. Underground construction:** Construction that is performed and located underground, typically in manholes, underground conduit and/or underground vaults. Underground construction activities often include “pulling” and splicing cable, installing padmount transformers and switchgear, and network vault construction.
- 67. Vault (aka “network vault” or “transformer vault”):** A large room which houses transformers and other electric infrastructure to provide network service. A vault can be free-standing or integral to a building and can be located either above or below ground. Vaults are installed and owned by the customer and must be constructed to National Grid standards. The customer is responsible for owning and maintaining the vault structure once it is built. National Grid installs, owns, and maintains the electrical equipment housed within the vault. Since vaults are typically located on private property, the property owner is responsible for executing a vault easement with National Grid. A vault easement will allow National Grid to access the vault for the purpose of maintaining the electrical equipment in it. Refer also to the definition for “Network Service.”
- 68. Work Request (WR):** A customer initiates a Work Request to commence the design and construction of an electric service. It is the critical first step in the process to get a new electric service or service upgrade. The order number assigned to the Work Request (WR #) is used to track the job through the company’s work management system. An Investigation Work Request is a request to determine electrical capacity/availability in a particular location before a customer decides to move forward with a project.

**Applications for New or Upgraded Service can be found at the following URLs:**

**New Service**

[http://usinfo.netcd/sites/EDOG\\_Dist\\_Support/customer\\_order\\_fulfillment/COF\\_support\\_Aids/NE%20Electric%20Service%20Request%20Form-%20N20Service.pdf](http://usinfo.netcd/sites/EDOG_Dist_Support/customer_order_fulfillment/COF_support_Aids/NE%20Electric%20Service%20Request%20Form-%20N20Service.pdf)

**Upgraded Service**

[http://usinfo.netcd/sites/EDOG\\_Dist\\_Support/customer\\_order\\_fulfillment/COF\\_support\\_Aids/NE%20Electric%20Service%20Request%20Form-%20Upgrade.pdf](http://usinfo.netcd/sites/EDOG_Dist_Support/customer_order_fulfillment/COF_support_Aids/NE%20Electric%20Service%20Request%20Form-%20Upgrade.pdf)

# Load Sheet

**Completely** fill out this form otherwise this will **delay** your project  
National Grid uses the provided loads to design & construct the requested electrical system

**WORK REQUEST #** \_\_\_\_\_

## Customer Information

<b>COMPANY NAME</b>		<b>CONTACT NAME</b>	
<b>MAILING ADDRESS</b>			
<b>SERVICE ADDRESS</b>			
<b>TELEPHONE #</b>		<b>E-MAIL</b>	
<b>ELECTRICIAN NAME</b>		<b>TELEPHONE #</b>	

## Load Information

Fill section below with **new** load for any 3ph service or 1ph greater than **200 amps**  
For each line below provide connected load in **Total kW** or **HP** (do not duplicate)  
Note: If there are multiple buildings, please submit a separate Load Sheet for each.

**SERVICE SIZE** \_\_\_\_\_ **amps** \_\_\_\_\_ **volts** \_\_\_\_\_ **phase**

**SQUARE FOOTAGE\*** \_\_\_\_\_

Equipment Type	kW		Usage
INSIDE LIGHTING		for	hrs/year
OUTSIDE LIGHTING		for	hrs/year
ELECTRIC HEATING		for	hrs/year
AIR CONDITIONING		for	hrs/year
WATER HEATING		for	hrs/year
REFRIGERATION		for	hrs/year
Additional Equipment	kW	# of Units	Usage
			for hrs/year
			for hrs/year
			for hrs/year
			for hrs/year
			for hrs/year
			for hrs/year
			for hrs/year
Motors**	HP	# of Units	Usage
			for hrs/year
			for hrs/year
			for hrs/year
			for hrs/year
<b>Total Connected Load</b>		<b>kW</b>	
<b>Total Diversified Load</b>		<b>kW</b>	

\*Square Footage is required to size service correctly  
\*\*Complete next page w/ NEMA code for 3 ph motors >15 HP & 1 ph motors > 5 HP

## Job Description


# Motor Data Sheet

Completely fill out and submit this form for each new motor either 3ph > 15 HP or 1ph > 5 HP  
If this data is not provided this will **delay** your project

## MOTOR DATA

<b>Largest</b>		<b>Use</b>				
HP						
<b>Rated Volt</b>	<b>Phase</b>	<b>Site Installation</b>	<b>Rated P.F.</b>	<b>Locked Rotor Code Letter</b>	<b>Start Under Load?</b>	
V	<input type="checkbox"/> 1 <input type="checkbox"/> 3	<input type="checkbox"/> New <input type="checkbox"/> In use			<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>MOTOR OPERATION</b>						
<b>Type of Use</b>			<b>Peak Use</b>			
<input type="checkbox"/> Permanent <input type="checkbox"/> Seasonal <input type="checkbox"/> Temp			<input type="checkbox"/> Summer <input type="checkbox"/> Winter <input type="checkbox"/> Day <input type="checkbox"/> Night <input type="checkbox"/> Other:			
<b>Starts/Unit</b>	<b>Dips/Unit</b>	<b>Starter if Used</b>				
per	per	<input type="checkbox"/> Auto <input type="checkbox"/> Manual <input type="checkbox"/> 80% Tap <input type="checkbox"/> 65% Tap <input type="checkbox"/> Other:				
<b>Applied Volt</b>	<b>Remarks/Further Description of operation, motor starting or in-rush current surges</b>					
V						

## WELDER DATA

<b>Largest</b>			<b>Used for</b>			
kVa max. input when sec. term. are short circuited						
<b>Rated Pri Volt</b>	<b>Phase</b>	<b>Site Installation</b>	<b>Rated P.F.</b>	<b>Other welders on site?</b>		
V	<input type="checkbox"/> 1 <input type="checkbox"/> 3	<input type="checkbox"/> New <input type="checkbox"/> In Use		<input type="checkbox"/> Yes <input type="checkbox"/> No		
<b>WELDER OPERATION</b>						
<b>Type of Use</b>			<b>Peak Use</b>			
<input type="checkbox"/> Permanent <input type="checkbox"/> Seasonal <input type="checkbox"/> Temp			<input type="checkbox"/> Summer <input type="checkbox"/> Winter <input type="checkbox"/> Day <input type="checkbox"/> Night <input type="checkbox"/> Other:			
<b>Welds/Unit</b>	<b>Length of Use</b>	<b>Basic Operational Use</b>				
per	per weld	<input type="checkbox"/> Production <input type="checkbox"/> Intermittent <input type="checkbox"/> Occasional <input type="checkbox"/> Other				
<b>Applied Volt</b>	<b>Duty Cycle</b>	<b>Remarks/Further Description</b>				
V	% @ kVa					

## CUSTOMER OPERATING LIMITATION

The % of regulation allowed for a range of  to  starts/welds per  or a range of  to  dips per is:

	Starts/Welds		Dips		LIMITATION REQUIRED		
	ALLOWED	CALCULATED	ALLOWED	CALCULATED	AMPS @		VOLTS
<b>STATION</b>		%		%			
<b>FEEDER</b>		%		%			
<b>CUSTOMER</b>		%		%			

Check here if additional motor data attached

**CUSTOMER OPERATING LIMITATION**

An inrush limitation of  AMPS @  V shall apply to this customer. This limitation shall apply to the starting of one or more motors, and/or the operation of one or more welders simultaneously. The customer will be responsible for remedial measures should the operation of the motors or welders create disturbances to other customers.

**Notes:** Momentary fluctuation of the circuit voltage occurs each time a motor is started on the circuit. Where this affect is pronounced, the Customer or other customers served from the same system may observe a visual disturbance or lighting flicker. To suppress objectionable voltage variations and maintain proper service to the Customer and their neighbors, it is necessary to set a maximum permissible limit to the current draw from the service during each step of a motor-starting operation based upon the frequency of starts. These limits are designed to cover typical cases and the company gives no warranty that particular conditions may not later require a change.

The specific motor-starting current limitations furnished by the company means the maximum allowable increase in current on the line side of the motor-starting device at any instant during the starting operation. This limitation does not restrict the total current that can be taken by the motor, but may require that this total be built up gradually, or in steps during starting. Where a step-type starter is used, an appreciable time must be allowed on each step and the current increase of each step shall not exceed the imposed limitation. Close transition between starting steps is required. When motors are started as groups instead of individually, the current limitations apply to the group and not the individual motors.

**WORK REQUEST #:** \_\_\_\_\_

**This portion to be completed by a National Grid Representative**

Massachusetts Electric Co.	<input type="checkbox"/>	Boston Gas Co.	<input type="checkbox"/>
Narragansett Electric Co.	<input type="checkbox"/>	Colonial Gas Co. Energy	<input type="checkbox"/>
Nantucket Electric Co.	<input type="checkbox"/>	North Natural Gas	<input type="checkbox"/>
		Essex Gas Co.	<input type="checkbox"/>

Check those that apply:  OH (jointly owned)  OH (solely owned)  OH & UG Electric

UG Electric  URD Electric  Padmount transformer only  GAS UG  GAS URD

NG Engineer's Name: \_\_\_\_\_ GAS \_\_\_\_\_ ELECTRIC

NG Engineer's Phone: \_\_\_\_\_ GAS \_\_\_\_\_ ELECTRIC

**NEW ENGLAND EASEMENT INFORMATION FORM**

- Please complete ALL of the sections below so that we may prepare an easement for your signature. Do not leave any section unanswered. If a section does not apply to you, simply put "n/a" on that line. Incorrect or incomplete information will delay service installation.
- \* \* \* \* \*
- You, the customer, are required to provide all the easement rights that National Grid deems necessary to install your electric/gas service, including any easement rights which must be acquired from others, at no cost to National Grid.

**Property Owner Name(s):**

\_\_\_\_\_

\_\_\_\_\_

**Property Owner E-Mail:**

\_\_\_\_\_

**Property Owner Mailing Address:**

Street Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

**Property Address of Easement:**

Street Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

**Customer Contact Person:**

Name: \_\_\_\_\_

Daytime Phone #: \_\_\_\_\_ Cell Phone #: \_\_\_\_\_



- If multiple deeds make up the whole parcel, please include all deeds.
- If registered land, please include a copy of the Land Court Certificate of Title - Number: \_\_\_\_\_
- If the Property Owner is a (1)Corporation, or (2)Trust, or (3)Partnership, or (4)Limited Liability Company(LLC), please provide the following, as applicable:

(1) Corporation

\*\* President's Name: \_\_\_\_\_ and Treasurer's Name: \_\_\_\_\_ OR  
 Vice Pres.'s Name: \_\_\_\_\_ and Asst. Treas.'s Name: \_\_\_\_\_

\*\* If neither "Name Combination" is available, the person(s) signing the easement must have a "Corporate Vote" authorizing them to sign on behalf of the Corporation.

(2) Trust - Number of Trustees: \_\_\_\_ Name of Trust: \_\_\_\_\_

Trustee(s): \_\_\_\_\_

\_\_\_\_\_

(3) Partnership - Number of Partners: \_\_\_\_

Name(s): \_\_\_\_\_

\_\_\_\_\_

(4) LLC - Authorization to Sign:

Manager(s): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_ Provide us with an approved "Subdivision Plan"

Plan Book #: \_\_\_\_\_ Plan #: \_\_\_\_\_ Dated: \_\_\_\_\_

**If no recorded subdivision Plan, please include the following information:**

Assessor's Map #: \_\_\_\_\_ Block #: \_\_\_\_\_ Lot #: \_\_\_\_\_

Is your property mortgaged? YES NO If "YES", please complete this section:

Name of Bank/Company/Person holding mortgage(s): \_\_\_\_\_

\_\_\_\_\_

Date and recording information of mortgage(s):

Date: \_\_\_\_\_ County Recorded: \_\_\_\_\_ Book #: \_\_\_\_ Page #: \_\_\_\_

**Additional Comments:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**nationalgrid**

HERE WITH YOU. HERE FOR YOU.