

National Grid USA Service Company, Inc.

Request for Proposals (RFP)

Non-Wires Alternative Project to Provide Solutions for the
Distribution System in South Kingstown, Rhode Island

ISSUED: JANUARY 29, 2019

REVISION ISSUED: FEBRUARY 22, 2019

SUBMISSION DEADLINE: APRIL 23, 2019

nationalgrid

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1. Introduction

National Grid is a gas and electric investor-owned utility serving nearly 3.3 million electric and 3.5 million gas customers through its subsidiary companies in Massachusetts, New York, and Rhode Island.

National Grid is committed to providing safe, reliable, and affordable energy to all customers throughout our service territory. As a part of providing this service, National Grid is pursuing the potential implementation of Non-Wires Alternative (NWA) solutions in Rhode Island. Such implementation aligns with principles set forth by the RI PUC Title 39 § 39-1-27.7 – System Reliability and Least-Cost Procurement.

National Grid has been pursuing Non-Wires Alternative projects across its service territories for several years.

2. Definition of NWA

Non-Wires Alternative (NWA), sometimes referred to as Non-Wires Solution (NWS), is the inclusive term for any electrical grid investment that is intended to defer or remove the need for traditional equipment upgrades or construction, or “wires investment”, to distribution and/or transmission systems.

These NWA investments are required to be cost-effective compared to the traditional wires investment and are required to meet the specified electrical grid need.

An NWA can include any action, strategy, program, or technology that meets this definition and these requirements.

Some technologies and methodologies that can be applicable as an NWA investment include demand response, solar, energy storage, combined heat and power (CHP), microgrid, conservation or energy efficiency measure, and other distributed energy resources (DERs). NWA projects can include these and other investments individually or in combination to meet the specified need in a cost-effective manner.

3. Our Goal

This RFP seeks to identify technologies and/or methodologies that, if implemented, will provide an NWA solution for a geographical area that has an electrical grid need. This area and need are identified in Section 4 – Project Overview.

This RFP is open to all NWA approaches. This RFP is meant to assess the best-fit technology type for this NWA project.

Any proposed NWA solutions will need to defer the traditional distribution asset starting in May 2022 and operating until at least 2030. Any NWA solutions that exceed this timeline will also be considered. Please note that National Grid is seeking solutions that currently exist to solve the stated need.

Proposed technologies and methodologies should have the capability to address the electrical grid need and increase grid reliability while being cost-effective in comparison to the traditional wires investment. Proposed technologies and methodologies should also be available when needed and respond immediately when called upon for the duration of NWA solution implementation.

To assist qualified bidders this document provides an overview of the project objectives, detailed business requirements and response submission information.

As outlined in the RFP Schedule section of this document, bidders will have the opportunity to submit questions that assist in creating a response for this initiative. Please see the RFP Timeline Schedule for dates associated with RFP milestones below.

4. Project Overview

Potential for Non-Wires Alternative Project in South Kingstown, RI

4.1. Background

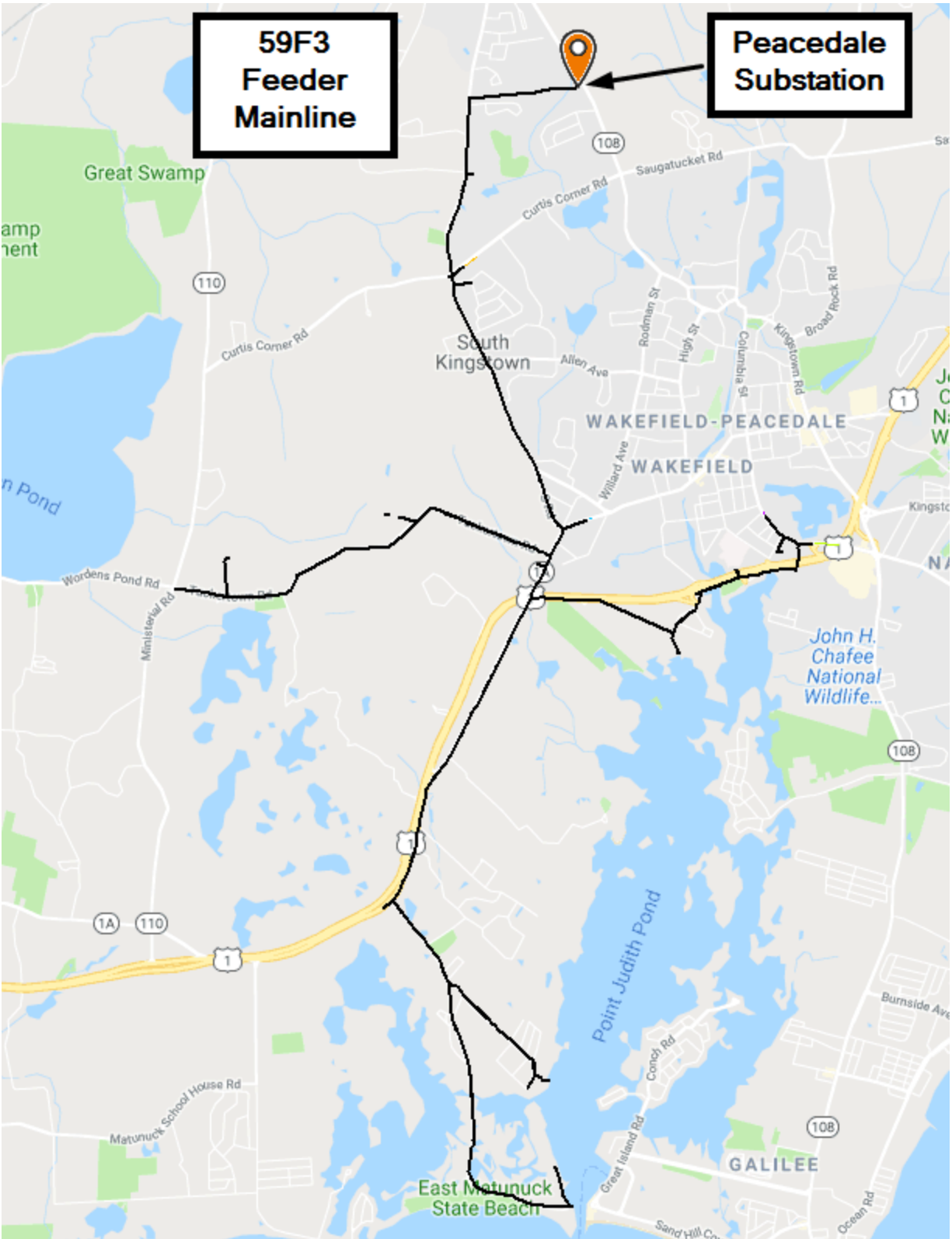
The western section of the Town of South Kingstown is mostly supplied by (3) 12.47 kV distribution feeders. Two feeders (59F3 and 68F2) are projected to be loaded above summer normal ratings and lack useful feeder ties to reduce loading below their ratings. Either new feeder ties must be created or load must be reduced in the western half of the town. Both a wires and a non-wires option was developed to address these projected overloads.

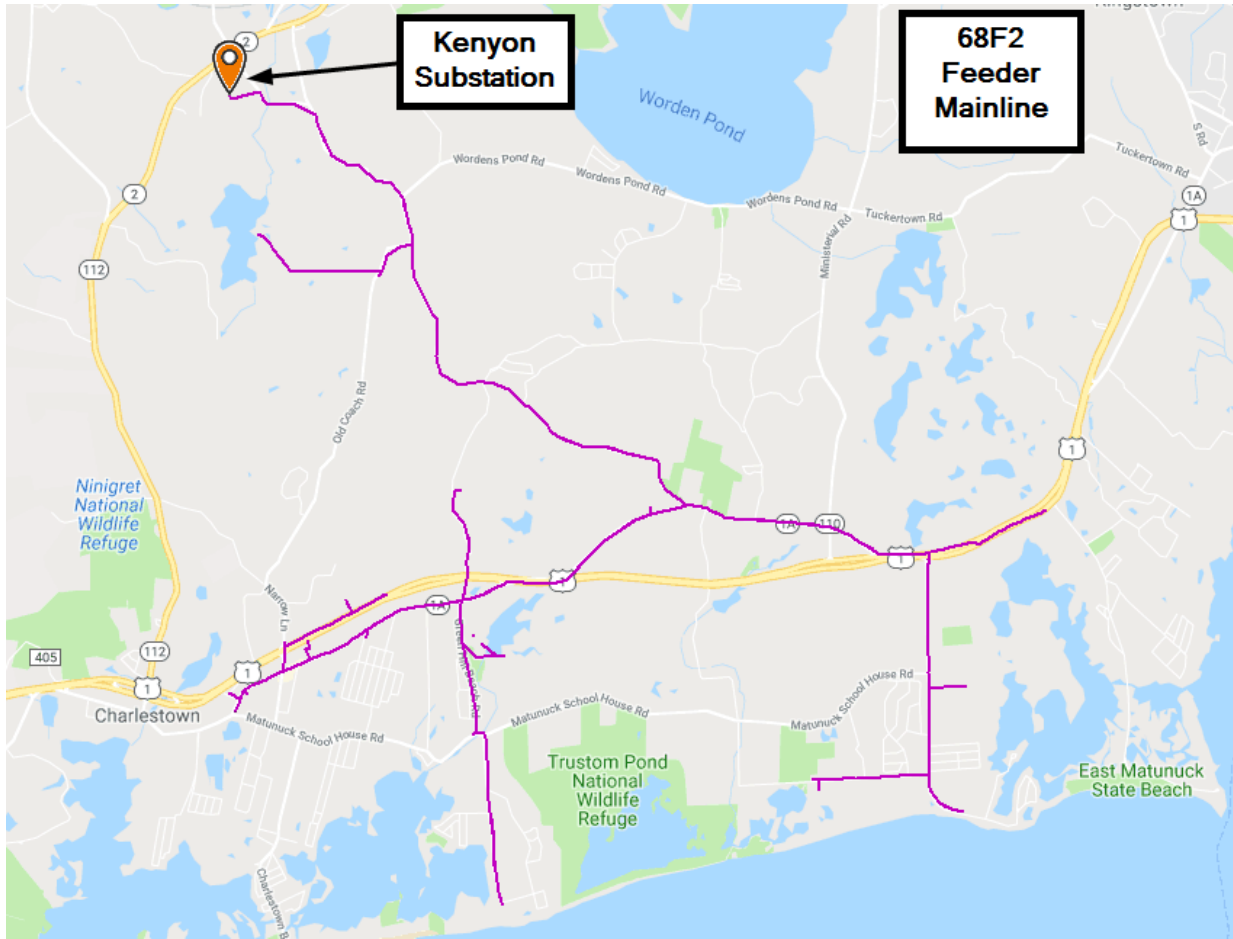
- **Wires Option:** Establish a new feeder tie between the 68F5 feeder and the 59F3 feeder. This new feeder tie provides switching flexibility to relieve both the 59F3 and the 68F2 feeders.
- **Non-Wires Option:** See Sections 4.1 and 4.2 below for Non-Wires requirements.

4.2. Technical Requirements

Problem Statement						
Description	The Company is seeking to provide load relief for the Peacedale 59F3 and the Kenyon 68F2 feeders.					
Technical Information	Substation	Feeder	Operating Voltage	Summer Normal Rating (Amps)	Overloaded By	Load Reduction Needed (kW)
	Peacedale	59F3	12.47 kV	492	2024	1448
	Kenyon	68F2	12.47 kV	511	2022	1646
						Total (kW)

Solution Requirements	
Technical Requirements	Maintain feeder loading below 90% of summer normal rating over a ten-year period by proposing a NWA solution that reduces loading on the feeder as outlined in the Problem Statement through 2030.
In Service Date	59F3: 2024 68F2: 2022
Maximum MWhr need	Based on historic data 59F3: 13.7 MWhrs total over the course of a year by 2030. 68F2: 18.0 MWhrs total over the course of a year by 2030.
Lifetime	10 years minimum
Call Response Time	24 hours
Days of the Week needed	Any days that the day-ahead ISO-NE load forecast applied to the Project Feeders indicates that loading will exceed 90% of the Feeder Summer normal rating. This could be both weekdays and weekends.
Time of Day	Any time of day.
Number of Time Called Per Year	59F3: A minimum of 6 days based on historic data 68F2: A minimum of 5 days based on historic data In order to account for the potential of a heat wave, the project may be called for 5 or more days in a row during peak load times.
Minimum Period between Calls	24 hours





Any DER location downstream of the target feeder getaways (where the feeder leaves the station) should solve the loading issue, pending a full interconnection study. See feeder maps above.

NOTE: Subject to changes in forecasted needs, solution pricing, as well as any other applicable costs and benefits, National Grid is targeting to procure NWA solutions that can supply the substation(s) load in its entirety or a large portion of it. During normal operation, for NWA technologies such as generation or storage solutions, any excess energy could be exported to the National Grid System depending on such factors as economics, portfolio fit, or others.

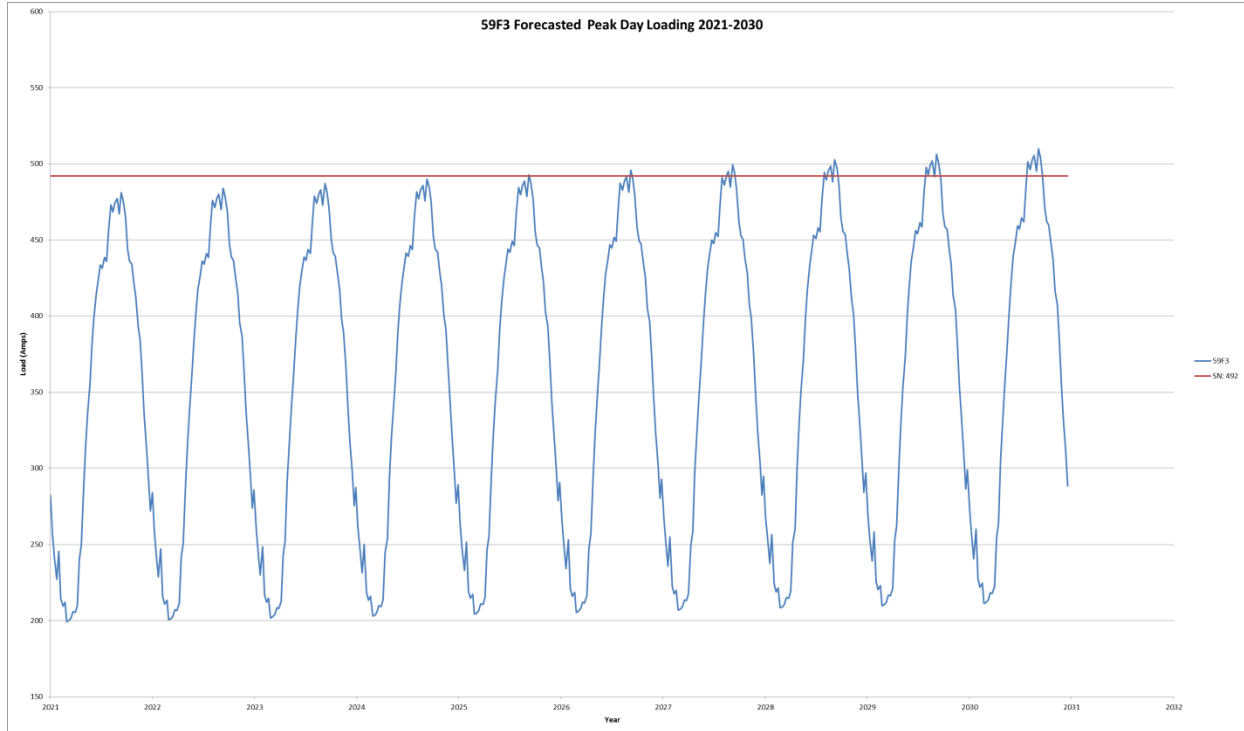
4.3. Technical Details

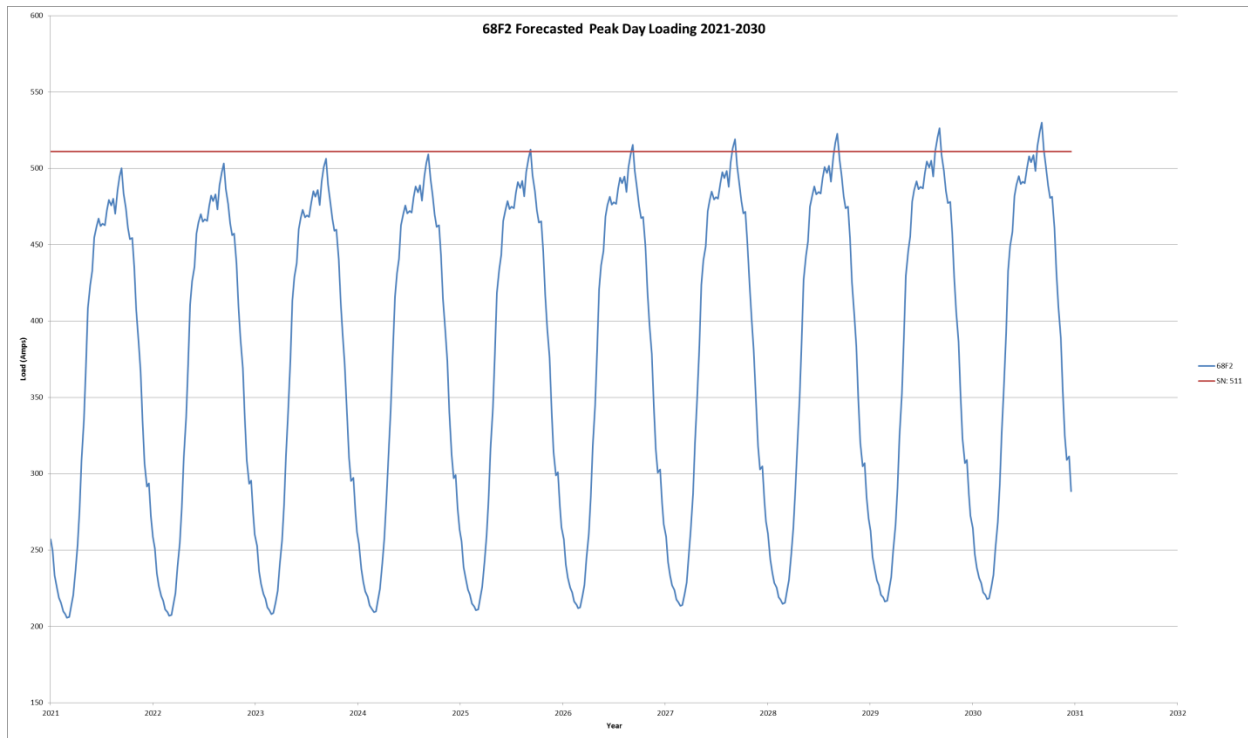
Substation	Feeder	Operating Voltage	Summer Normal Rating (Amps)	Overloaded By	Load Reduction Needed (kW)
Peacedale	59F3	12.47 kV	492	2024	1448
Kenyon	68F2	12.47 kV	511	2022	1646
				Total (kW)	3094

Substation	Feeder	Commercial Customers	Residential Customers	Total
Peacedale	59F3	73	2671	2744
Kenyon	68F2	16	4113	4129
Grand Total		89	6784	6873

4.3.1. Feeder Loading

Loading on the 59F3 and 68F2 feeders is predicted to be over 100% of their summer normal ratings and will be overloaded over the next ten years. All other facilities' loadings are within their normal equipment ratings. The rating of feeders is determined by the equipment with the most limiting element (that with the lowest normal summer rating). The load forecast utilizes a technique called weather normalization, a process that assumes future year peaks will occur given high loading condition (e.g., a June peak will occur on hot day, where the temperature in the 95th percentile of hottest years). The charts below show the projected load on the feeders using the peak day at the time of study and the loads are grown according to the forecasted analysis.





4.4. Solution Timeline

National Grid requires that any proposed NWA solutions will need to defer the traditional distribution asset starting in May 2022.

National Grid requires that any proposed NWA solutions will need to defer the traditional distribution asset until at least 2030. Any NWA solutions that exceed this timeline will also be considered.

5. Project Economics

National Grid is seeking solutions that provide value to the customer and are cost-effective.

The estimated net present value of deferring the wires investment for the required timeframe (“Approximate Value”) is \$1,328,500.

This Approximate Value is intended to be used as a total estimate associated with an NWA solution that meets the need statement described above. This Approximate Value is intended to inform developers whether their proposals are competitive; if the present value of the contract cost is near or below this value, the bid could be considered competitive. This Approximate Value is based on the current

planning level estimate for the wires solution and includes all project work, capital expenditure, annual service feeds, energy service agreement payments, and the Rhode Island locational incentive value. Design of the wires solution by National Grid will continue throughout the NWA bid evaluation process, so the Approximate Value is subject to change. Please also note that the Benefit-Cost Analysis (BCA) considers numerous costs and benefits in addition to bid price and the deferral value of the traditional project.

National Grid is open to considering shared capital costs or owning a non-generation solution or asset.

National Grid encourages vendors to pursue additional relevant revenue streams to produce the most cost-effective solution.

Pricing models to be considered shall be as follows:

- Capital Expenditure
- Annual service fee
- Energy Services Agreement for capacity delivered (i.e., dollars per kW)
- Any combination of the above

6. Instructions for Bidders

6.1. Response and Deliverables

This section describes the list of items and deliverables required from the bidder. Please provide detail in your response as to why the technology/solution your firm proposes is the best-fit for this NWA project. All items should be responded to in the context of the project listed in Section 4 – Project Overview.

Please provide a concise written response under 15 pages (excluding appendices) for ease of review. There will be sections to upload additional documents on the Ariba Platform.

Responses that do not provide the requested information below can be disqualified. Bidders must submit their responses in the following format.

- Executive Summary of Proposed Technology/Solution
- Financial Plan
 - Cost of Technology/Solution for the Specified Need
 - Cost comparison to other technologies/solutions
 - Bidder's Suggested Financial Plan
- Implementation of Technology/Solution

- Technology/Solution Reliability, with Documentation on the Solution's Technical Reliability
- Examples of Firm's Application of Technology/Solution
- Timeline for Technology/Solution Installation
- Bidder Qualifications (To be included as an Appendix)

Bidders must additionally provide the following as an Appendix/Attachment:

- List of Historical Project Permits
- Historical Safety Record
- List of Current Environmental Certifications
- List of Historical Project Environmental/Eco awards

6.2. Evaluation Criteria

This section describes the evaluation criteria that project bid responses will be screened with.

- Cost
- Scalability
- Load Reduction Capability
- Feasibility of Proposed Technology Type/Solution
- Risk of Proposed Technology Type/Solution Creating Negative System Impacts
- Environmental or "Green" Requirement

6.3. RFP Schedule

- RFP Launch: 1/29/2019
- Bidders Conference Call: 2/13/2019
- Last date to submit questions: 3/25/2019
- Responses Due: 4/23/2019

6.4. Rhode Island System Data Portal

National Grid has developed a new web-based tool called the Rhode Island System Data Portal that houses a collection of maps to help customers, contractors, and developers identify potential project sites and with project bidding and development. Each map provides the location and specific

information for selected electric distribution lines and associated substations within the National Grid electric service area in Rhode Island.

The Rhode Island System Data Portal can be found at the following location:

<https://www.nationalgridus.com/Business-Partners/RI-System-Portal>