



# PSEG Long Island

## Request for Information

**Innovative Solutions to Provide Transmission and Distribution System  
Load Relief**

**April 28, 2015**

# Table of Contents

|  |           |
|--|-----------|
| <b>1 Information .....</b>                                   |           |
| 1.1 Background .....   | <b>3</b>  |
| 1.2 Proposal Purpose .....                                   | <b>3</b>  |
| 1.3 General Guidelines .....                                 | <b>4</b>  |
| 1.4 RFI Schedule .....                                       | <b>5</b>  |
| <b>2 Solution Requirements .....</b>                         | <b>5</b>  |
| 2.1 Professional Background & Experience with Solution ..... | <b>6</b>  |
| 2.2 Project Requirements .....                               | <b>6</b>  |
| 2.3 Functional Requirements .....                            | <b>7</b>  |
| <b>3 Instructions to Respondents .....</b>                   | <b>8</b>  |
| 3.1 Proposal Response and Submittal Instructions .....       | <b>8</b>  |
| 3.2 Solution Review Approach .....                           | <b>9</b>  |
| 3.3 Proposal Response Format .....                           | <b>9</b>  |
| <b>4 Appendices .....</b>                                    |           |
| Functional Questionnaire .....                               | <b>11</b> |
| Capital Project Detail .....                                 | <b>14</b> |

# 1 Information

PSEG Long Island (LI) is requesting information from qualified and experienced vendors with the capability to deliver innovative behind-the-meter or non-traditional grid-connected solutions (“Solutions”) that provide transmission and distribution system load relief and reduce or defer the need to upgrade transmission and distribution infrastructure.

## 1.1 Background

PSEG Long Island is a subsidiary of Public Service Enterprise Group, and has been contracted by the Long Island Power Authority to provide Transmission and Distribution services to Nassau & Suffolk Counties and the Rockaway Peninsula. PSEG Long Island provides a wide range of energy-related services to its customers through various energy efficiency & renewable programs in its service territory, with the exception of customers located in the towns of Rockville Centre, Freeport, and Greenport. Information that any interested party wishes to submit will be done so voluntarily with the understanding that this RFI is for information gathering purposes only and is not a formal solicitation. RFI responses should outline the vendors’ suggested approach and indicative cost for completing the project.

## 1.2 Proposal Purpose

This RFI solicits responses from qualified parties (“Respondents”) stating their interest and qualifications to supply PSEG Long Island with Solutions within the targeted load areas served by the Kings Highway/Hauppauge substation, Montauk feeder overload, Hempstead substation upgrade, Riverhead to Eastport reconductoring project, and the Plainview to Ruland Rd new 69 kV transmission line. Specifically, PSEG Long Island is seeking proposals for Solutions to delay or eliminate the need for the following planned capital investment projects. Solutions should be installed and available by the project implementation deadline, or earlier:

| Project       | MW Relief Required | Project Implementation deadline |
|---------------|--------------------|---------------------------------|
| Kings Highway | 63.2               | Summer 2017                     |
| Montauk       | 0.6                | Summer 2017                     |
| Hempstead     | 6.1                | Summer 2017                     |
| Riverhead     | 6-10.2             | Summer 2016                     |
| Plainview     | 18.5               | Summer 2015-2020                |

The load relief for Montauk is limited to specific 4kV feeders in the area. A separate RFP is being issued for the entire South Fork which is looking for additional relief in the entire area.

These projects support the load growth in each area and are designed to provide relief and reinforcement in each area. More detail on these projects can be found in the **Appendix**.

Operational measures will be employed by the Company to address capacity constraints in years 2015 and 2016. However, due to the inherent temporary nature of the operational measures, a permanent solution is required to address the forecasted demand growth and defer the need to build traditional utility infrastructure, namely new area substations and transmission/distribution line upgrades. Customer and utility side “alternative” solutions are requested to help delay the need for the traditional infrastructure solutions. These solutions are needed to address forecasted electric load demand in 2016 and beyond.

This RFI is the first step in identifying non-traditional solutions. PSEG Long Island may initiate future RFPs, tariff(s) and/or other procurement actions for specific KW reduction needs, associated targeted geographic areas, and need dates, if response(s) to this RFI indicates that viable cost effective Solution(s) exist for a particular project location and time frame. This RFI is seeking information from innovative solution providers for potential multiyear solutions for pre-determined KW needs and delivery .

Targeted areas and characteristics of the various substations and load constraints, where relief is needed, are included in the **Appendix**. Timing and duration of load reduction needs have been identified as the summer peak load occurring over the months of June through September, Monday to Friday, largely during the hours of 10 am to 7 PM. All South Fork projects should consider peak load to be 1 PM – 9 PM Mon – Sun.

### **1.3 General Guidelines**

PSEG Long Island reserves the right to make changes to this RFI by issuance of one or more addenda or amendments and to distribute additional clarifying or supporting information relating thereto. PSEG Long Island may ask any or all Respondents to elaborate or clarify specific points or portions of their submission. Clarification may take the form of written responses to questions or phone calls or in-person meetings for the purpose of discussing the RFI, the responses thereto, or both.

It is solely the responsibility of each respondent to ensure that all pertinent and required information is included in its submission. PSEG Long Island reserves the right to determine at its sole discretion whether a submission is complete or eligible for consideration.

Respondents should clearly state all assumptions they make about the meaning or accuracy of information contained in this RFI. If PSEG Long Island does not receive any questions concerning this RFI, it is assumed that the respondent agrees with and understands the requirements in the RFI. While PSEG Long Island has endeavored to provide accurate information to respondent firms, PSEG Long Island makes no such warranty or representation of accuracy.

Respondent firms are encouraged to provide and release necessary authorizations for PSEG Long Island to verify any of such respondent firm’s previous work, except where it is contractually prohibited from doing so pursuant to customer agreements. This RFI shall not be construed to create an obligation on the part of PSEG Long Island to enter into any contract, or to serve as a basis for any claim whatsoever for reimbursement of costs for efforts expended by respondent firms. Furthermore, the scope of this RFI

may be revised, withdrawn, or cancelled at the option of PSEG Long Island at any time. PSEG Long Island shall not be obligated by any responses or by any statements or representations, whether oral or written, that may be made by the PSEG Long Island or its employees, principals or agent.

**In the event respondents feel they cannot offer a solution, respondents are encouraged to provide insight as to the reasons why.**

Any exceptions to the terms, conditions, provisions, and requirements herein must be specifically noted and explained by a respondent firm in its response to the RFI. PSEG Long Island will assume that any response to this RFI expressly accepts all the RFI terms, conditions, provisions and requirements, except as expressly and specifically stated by a respondent firm in its response to the RFI.

Participating respondent firms agree to keep confidential all information provided by PSEG Long Island in connection with this RFI. In addition, any information the respondent deems to be confidential under the Freedom of Information Law (FOIL), should be marked as confidential in the response. A Confidentiality and Non-Disclosure Agreement (NDA) can be provided if necessary.

## **1.4 RFI Schedule**

Responses and supporting attachments are to be submitted electronically via the internet as a PDF and/or excel attachment in an email to **PlanevalLI@pseg.com**

### **Completion Date**

#### **RFI Milestones**

|  |                              |
|--|------------------------------|
| Issue RFI                                  | April 28 , 2015              |
| Last day to submit clarification Questions | May 12 , 2015 by 5:00 PM EDT |
| PSEG LI responds to Questions              | May 19, 2015                 |
| RFI Proposal Submission Deadline           | June 2, 2015 by 5:00 PM EDT  |

## **2 Solution Requirements**

This section outlines the requirements for responses to the RFI. Functional Questions are included on page eleven (11), **which should be submitted with the Respondents proposal**. Please answer these questions in detail and attach them when submitting your proposal. Any additional information you would like to provide about the proposed solution to give more clarification on how it can achieve the required demand reduction, can be included as an attachment.

## 2.1 Professional Background and Experience with the Proposed Solution

Respondents should provide a brief outline of their Company, leadership, financial position and the services offered. Respondents should describe the following:

- Executive Summary of solution proposal
- Highlight where you have performed industry specific work that is similar in nature and relevant to the Demand Side Management solution requirements with particular emphasis on implementation of the solution at other utilities, large municipals, co-ops, or any other applicable facilities.
- Relevant project experience
- Partnership secured or needed (e.g. subcontractors, community groups, etc.)
- Amount of specific relief respondent would be capable of providing per target load area.
- Technology/Solution description
- Tested and proven or innovative?
- Where else has the technology been deployed?
- What are performance characteristics of the technology?
- How will the solution address the various substation challenges?
- How it will be consistent with and help address implementation of the Reforming the Energy Vision (REV)?
- Measurement & verification process & procedures
- Innovation risks, barriers, challenges, etc.
- Respondents should address any estimated costs associated with implementing the proposed solution, including customer and utility costs, as well as any other relevant costs. Respondents should also describe in detail non-energy benefits associated with the proposed solution. Please submit costs in a \$/KW format.
- List and contact information of customers where the solutions were implemented and note whether PSEG Long Island can contact these customers for more information?
- Any other relevant information that you deem appropriate and noteworthy that supports and validates the proposed solution

## 2.2 Project Proposal Requirements

Respondents are encouraged to submit alternative, creative proposals for marketing, sales, financing, implementation, and maintenance, or transaction structures and pricing formulas that will achieve the demand reductions sought and maximize value to PSEG Long Island customers.

The selected Respondents, if contracted through a subsequent competitive solicitation, will be required to provide full facility and equipment access to PSEG LI and its representatives for pre- and post-

installation inspections to verify the installations and the demand reductions, and for subsequent inspections (which may be performed at PSEG LI discretion), to verify continued operation and maintenance of the Solutions for the applicable term.

New Solutions must be in service, and the pledged demand reduction must be guaranteed to commence, by the respective need dates for the applicable load area, to address forecasted load constraints in accordance with project implementation date(s) identified in Section 1.2 . All cost information for proposed Solutions must be expressed on a \$/KW basis.

PSEG Long Island believes that financial assurances will be required to ensure that the committed amount of capacity savings/reductions that are to be achieved through the proposed Solutions will be installed and the committed in-service date for each measure will be met. Failure to achieve the committed demand reductions or to meet the committed in-service dates will result in penalties which will be established during the contracting phase. Respondent should indicate what level of financial assurance respondent would believe appropriate.

Respondents to this RFI should specify the data and methodology used to determine the estimated peak demand reduction (KW savings) and annual kWh savings attributable to each Solution proposed.

Respondents proposing to market the installation of Solutions to others should include a full and complete assessment of the Solution opportunity(ies). At a minimum, this assessment should include a description of the markets, such as one-to-four family homes, multifamily buildings, small commercial (e.g., retail stores, restaurants), large commercial (e.g., office buildings, industrial) and government or institutional (e.g., hospitals, hotels, schools, colleges), and the applicable Solutions and technologies to be directed at each selected market or customer segment. In addition, Respondents should illustrate the marketing and sales strategies that will be employed to capture the selected market or customer segment and to deliver the demand reductions included in their proposals.

Community impact is critical to the review of any proposal. Proposals must provide information on elements of the proposal that affect the community (both positive and negative) including, but not limited to, associated GHG emissions, waste streams and management, job creation potential and community disruption.

The Company is interested in proposals which will take advantage of funding available from other funding streams. In order to mitigate the cost impact on the Company's customers it will be important to maximize the use of existing City, State and Federal funding opportunities. The ability to unleash private sector funding should also be identified. Explanations of such funding opportunities should be expected to provide examples which are provable and repeatable.

Please note that information any interested party wishes to submit is done so voluntarily with the understanding that **this RFI is for information gathering purposes only and is not a formal solicitation.**

## **2.3 Functional Requirements**

Respondents have been provided a detailed Functional Questionnaire in the appendix. Please provide your responses in the document and submit with the RFI proposal. Major categories within the functional questions include:

- Respondents go-to-market strategy
- Technology Maturity
- Measurement & Verification
- Other Funding Sources Available
- Environmental and Community Impacts
- Respondents Market Understanding
- Proposed Solution Benefits
- Customer Satisfaction
- Timeliness
- Other Additional Information can be included if appropriate to clarify or further explain your response

### 3 Instructions to Respondent

Respondents are instructed to prepare the RFI response in accordance with the instructions outlined below, with the proposal focused on the Solution(s) Requirements (Section 2) and as well as a required submittal of the Functional Questionnaire Responses as a separate attachment. Respondents should also provide:

- A proposed project plan and a breakdown of costs (utility and customer sided) to implement the solution; and
- All partnerships or other relationships (if any) with other third parties to support or perform a particular function.

#### 3.1 Proposal Response and Submittal Instructions

**Please format the email subject line as PSEG Long Island Alternative Solutions RFI**

Responses are to be submitted via email. PSEG Long Island will not be responsible for late, lost, illegible or misdirected submissions. Review of responses submitted to this RFI will be coordinated through the PSEG Long Island Energy Efficiency and Renewables Department and other company departments as necessary. PSEG Long Island may, at its option, contact Respondents with additional questions or information requests. Additional action by PSEG LI related to this RFI is solely at the Company's option, and as such, the company has no obligation whatsoever to address questions, comments, or information requests related to this RFI after receipt of Respondents responses.

Any questions or needed clarifications concerning this RFI should be sent to **PlanevalLI@pseg.com**. The deadline to submit questions via email is 5:00 PM EDT on May 12, 2015. Emailed questions received



after this date may not receive a response. PSEG LI will not respond to any questions received in-person, by mail, by fax, or by phone.

## 3.2 Solution Review Approach

Solutions proposed in response to this RFI will be reviewed by PSEG Long Island. Some of the main review criteria of the qualified proposals received are listed below. This process is designed to be fair and equitable, with the objective of potentially anticipating selecting a solution(s) that provide the greatest overall value. This will be obtained by a competitive solicitation for a demand side solution for one or more of the capital projects identified within this RFI. The decision to move forward with such solicitation will be determined, in part, by responses to this RFI as to the likelihood of the marketplace to deliver solutions to reduce electric demand enough in accordance with the specified project need dates.

Evaluation criteria will include but not limited to:

**Respondent Proposal Viability**- the extent to which the Respondents proposed solution would fit into the needs of the targeted projects.

**Proposed Solution Functionality** -the extent to which the proposed solution would meet the defined functional requirements.

**Environmental and Community Impacts** associated with the solution.

**Cost Effectiveness**- the cost effectiveness of the proposed solution. All pricing should be provided on a \$/KW basis.

**Timeliness**- the ability to meet PSEG LI schedule and project deployment requirements. Ability to deliver one year earlier than the project implementation dates.

**Price and reliability** - compared to other solutions. All pricing should be provided on a \$/KW basis.

**Respondent Qualifications**- the relevant experience and success providing these solutions to other locations, including reference checks and documented results. Respondents should note that if PSEG LI has reviewed the solution, it is not a guarantee that the solution will be selected. **PSEG LI has requested the proposals for informational gathering purposes and this RFI is not a formal solicitation.**

## 3.3 Proposal Response Format

### 3.3.1 Table of Contents

Include a clear identification of the proposal by section and by page number as identified above.

### 3.3.2 Professional Background & Experience with the Proposed Solution

This section is for the respondent to provide an executive overview and summary of your company and general description of the key features of your solution. It should include the items outlined in Section 2.1 of the RFI.

### 3.3.3 Proposed Solution & Project Plan

This is a response to the solution requirements as outlined in this document. Respondents should also provide a proposed project plan for the solution.

### 3.3.4 Costs associated with the Proposed Solution

Respondents should provide a detailed breakdown of the costs associated with implementing the proposed solution. All costs should be expressed on a \$/KW basis.

### **3.3.5 Assumptions & Exceptions**

Respondent should provide a list of assumptions made in developing the response to this RFI that should be considered when evaluating the response. Respondent should provide a stand-alone section listing any exceptions to the RFI. (i.e. deliverables that can't be met)

**Electric demand savings for the proposed measures should be included in a summary chart as shown below. Respondent must supply this information for each project outlined in the Appendix:**

|                                 | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|
| KW Reduction                    |             |             |             |             |             |
| \$/KW                           |             |             |             |             |             |
| Kwh reduction<br>(if available) |             |             |             |             |             |

# Functional Requirements Questionnaire

## **Market Strategy**

1. What are the customer segments that your Company targets?
2. Please provide details on your Company:
  - a. How long have you been in business?
  - b. Annual revenue
  - c. Number of employees
  - d. Number of locations, Indicate headquarters or business office(s) in NY.
  - e. Please supply any pertinent case studies/testimonials related to your proposed solution.
3. Please describe your sales model:
  - a. Do you rely on direct sales representatives, contractors/subcontractors, business partners, or a combination? Please describe.
  - b. How many of each do you utilize; direct sales, contractors, subcontractor, and business partners?
4. What is your outreach/education/marketing strategy for reaching customers?
5. Do you work with, or are you affiliated with, any third-party organizations, businesses, or otherwise? If so, please list.
6. What is your plan for community outreach?
7. What is the basis for your technology's savings calculations?
8. Do you have third party measurement and verification reports? Was metering conducted? For what duration were the meters deployed?
9. Are you currently receiving incentives for your technology from other Utilities?

## **Technology Maturity**

- a. Is your technology deployed in other US locations?
- b. Reference projects with electrical utilities, if any – who, when and how many
- c. Reference projects with similar non-utility clientele, if any – who, when and how many
- d. Technology roadmap, if in development and how soon will this be available for implementation

## Measurement & Verification

1. Have any other Public Service Commissions (PSC) or Public Utilities Commissions (PUC) approved your technology for program adoption?
2. All projects may be subject to pre and post measurement and verification. Are you confident with your technology's ability to withstand project by project savings verification?
3. How many years do you guarantee your technology's ability to deliver its projected annual savings?
4. Provide savings calculations and source. Please use \$/KW cost format. (Attach separate document)
5. Identify problems with the current system and the solution provided by your technology.
6. Identify the baseline upon which your projected savings is derived.
7. Does the efficiency of your solution depend on the condition of any other system already in place? If so, provide a list.
8. Is the technology approved by UL, CTL, NYS, or other appropriate agency?
9. Does the technology require any special metering by the utility in order to verify savings?
10. Do the facilities in which your technology has been deployed or is currently being deployed have a BMS or other technology or process that can enable specific data review?

## Environmental & Community Impacts

1. Are there any CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, idling impacts, and other greenhouse gas emissions associated with your project and technology? Please include any other emissions associated with your technology.
2. What is your plan for waste and disposal associated with your technology?
3. Please list and describe other environmental performance and impacts associated with your project and technology.
4. How will the proposed solution impact the community with regard to noise?
5. How will the proposed solution impact the community with regard to waste streams and management?
6. How will the proposed solution impact the community with regard to job creation?
7. Please provide information on the type of community disruption, if any, the proposed solution would present.
8. What are other potential community impacts that would result from deploying the proposed solution?
9. Please provide the market potential for your solution in the targeted geographic areas described.
10. Please list other places in NY, or elsewhere, where your solution has been successfully deployed.
11. Are there specific customers you are currently working with to deploy your solution?
12. What is the expected energy benefits associated with your solution (kW and kWh reductions)?
13. What are the expected environmental benefits associated with your solution?

14. What are the economic benefits (e.g. customer cost reduction, job creation, work force training, community development, economic activity, etc.) associated with your solution?
15. What are other non-energy benefits associated with your location including but not limited to:
  - a. Resiliency
  - b. Occupant comfort
  - c. Technology life expectancy
  - d. Other
16. What are other funding streams (i.e. City, State, and Federal) that can be utilized to deploy the proposed solution, to mitigate the cost impact on the Company's customers?
17. Are there other opportunities to utilize private sector funding for this solution?

## **Customer Satisfaction**

1. What role, if any, do you see PSEG Long Island playing in the implementation of your solution?
2. What impacts, if any, would participants experience in the implementation of the measures you propose?
3. What benefit would participants expect to receive for participating in your proposed solution(s)?
4. What is your approach to participant outreach, engagement, ongoing communication, and dispute resolution? Please include communication avenues available for participants to respond to you.
5. Do you monitor participant satisfaction levels? If so, please provide results from other similar project solution implementation.

## **Timeliness**

1. Do you have the ability to reach the project need dates as outlined in the chart on page 3?
2. Do you have the ability to provide the necessary load reduction one year earlier than the need dates for the projects outlined on page 3?
3. Would delivering the load reduction one year earlier change your response in any way?

# Appendix – Capital Project Detail

## Kings Highway:

(New 138 KV substation) Kings Highway is centrally located in the area between the substations below, and is designed to address the load in the entire area. Relief would be needed at each substation on the list, as well as individual feeders. Kings Highway also reduces the load on the substations outlined below, assisting in the deferral of transmission reinforcements to the Smithtown load pocket. Relief will be needed from June to the end of August, and the hours with the most risk of overloads will be from 2 PM to 8 PM. The exception is the Hauppauge substation, which will peak from 10 am to 6 PM. For the non-summer months, there is an estimated 14 days of exposure of overloads in 2017.

| Substation                | Relief Needed (MW) | Peak Load (MW) | % Relief   | Customer Count         | Growth Rate/Yr. | Substation Space | Comments   |
|---------------------------|--------------------|----------------|------------|------------------------|-----------------|------------------|--|
| <b>6D - Smithtown</b>     | <b>13</b>          |                |            |                        | Flat            | No               | <b>Total Substation</b>                                  |
| 6D-636                    | .9                 | 8              | 11%        | 889 Resi<br>100 C/I    |                 |                  | Feeder relief  |
| 6D-635                    | .9                 | 8              | 11%        | 974 Resi<br>45 C/I     |                 |                  | Feeder relief  |
| Bank 1&2                  | 11                 | 46 total       | 24%        | 8,353<br>station total |                 |                  | Any feeders on Banks, in addition to above feeder relief |
| <b>6 DL - Pilgrim</b>     | <b>4.1</b>         |                |            |                        | Flat            | Yes              | <b>Total Substation</b>                                  |
| Bank 1&2                  | 4.1                | 47             | 9%         | 7,331 Resi<br>756 C/I  |                 |                  | Any feeder on Banks                                      |
| 7ZM-Pines                 | 4                  |                |            |                        | Flat            | No               | Total Substation   |
| 7ZM-834                   | 4                  | 6              | 67%        | 984 Resi<br>107 C/I    |                 |                  | Feeder relief  |
| <b>7DM- Central Islip</b> | <b>10</b>          | <b>50</b>      | <b>20%</b> |                        | Flat            | No               | <b>Total Substation</b>                                  |
| Bank 1 or 2               | 10                 | 50             | 20%        | 8,703 Resi<br>967 C/I  |                 |                  | Cannot be on bank 4 or 5                                 |
| <b>6HL – Indian Head</b>  | <b>7.1</b>         |                |            |                        | Flat            | Yes              | <b>Total Substation</b>                                  |
| 6HL-812                   | .8                 | 9.6            | 8%         | 2,218 Resi<br>45 C/I   |                 |                  | Feeder relief  |
| 6HL -813                  | 4.4                | 9.9            | 44%        | 1,838 Resi<br>84 C/I   |                 |                  | Feeder relief  |
| 6HL-815                   | 1.5                | 8.2            | 18%        | 1,529 Resi<br>130 C/I  |                 |                  | Feeder relief  |
| 6HL-816                   | .4                 | 8.5            | 5%         | 1,778 Resi<br>184 C/I  |                 |                  | Feeder relief  |

|              |     |     |     |                      |                |    |   |
|--------------|-----|-----|-----|----------------------|----------------|----|---|
| 6H Hauppauge | 25  |     |     |                      | High Potential | No | Total Substation                          |
| 6H-504       | 1.1 | 9.6 | 12% | 37 Resi<br>218 C/I   |                |    | Feeder relief                             |
| Substation   | 24  | 75  | 32% | 95 Resi<br>1,108 C/I |                |    | Substation relief –<br>for L/O substation |

### Navy Road/Montauk:

Montauk substation is one of the older substations on the distribution system. The substation has non-standard design and older structures. The existing 23 kV substation is in a flood zone and does not have space. There is an estimated 14 days of exposure to overloads on the specific feeders in 2017.

| Substation | Relief Needed (MW) | Peak Load (MW) | % Relief | Customer Count      | Growth Rate/Yr. | Substation Space | Comments      |
|------------|--------------------|----------------|----------|---------------------|-----------------|------------------|---------------|
| 9U-Montauk | .6                 |                |          |                     |                 | No               | Flood Area    |
| 9U-678     | .3                 | 3.3            | 10%      | 442 Resi<br>421 C/I | 3%              |                  | Feeder relief |
| 9U-679     | .3                 | 3.3            | 10%      | 989 Resi<br>191 C/I | 3%              |                  | Feeder relief |

### Hempstead:

This project entails upgrading an old 4 kV substation to 13 kV as well as upgraded transmission to the site to accommodate load. Lack of space at E.G.C, W Hempstead, and Country Life Press substations require expansion at Hempstead. The substation is an older 4 kV substation and only remaining 23 kV substation. Relief will be needed from June to end of August, and the hours most at risk of overload will be from 2PM to 6 PM. For non-summer months, there is an estimated 5 days of exposure to overload in 2017.

| Substation     | Relief Needed (MW) | Peak Load (MW) | % Relief | Customer Count        | Growth Rate/Yr. | Substation Space | Comments      |
|----------------|--------------------|----------------|----------|-----------------------|-----------------|------------------|---------------|
| 3R-W Hempstead | 3.9                |                |          |                       |                 | No               | Total         |
| 3R-48          | 1.9                | 9.6            | 20%      | 3,607 Resi<br>312 C/I | Flat            |                  | Feeder relief |

|                          |     |      |     |                       |      |     |                           |
|--------------------------|-----|------|-----|-----------------------|------|-----|---------------------------|
| 3R-49                    | 2.0 | 10.7 | 19% | 2,471 Resi<br>372 C/I | Flat |     | Feeder relief             |
| 4H-EGC                   | 2.2 |      |     |                       |      | No  | Total                     |
| 4H-252                   | 2.2 | 10   | 22% | 3,766 Resi<br>193 C/I | Flat |     | Feeder relief             |
| 4D-Country<br>Life Press | NA  | NA   | NA  | NA                    | NA   | No  | No space for<br>expansion |
| 4K-<br>Hempstead         | NA  | NA   | NA  | NA                    | NA   | Yes | Space Available           |

### Riverhead to Eastport:

This project consists of the reconductoring of the Riverhead to Eastport circuit to a minimum LTE rating of 145 MVA. The overloading of this circuit can also be addressed through the implementation of a load relief project at 8RX-Moriches and/or 8T-Eastport. The load relief required for 2016 can be seen in the table below. Each additional year after 2016 requires an approximate 0.1 MWs additional load relief. The months requiring this relief are June – August (starting the 2<sup>nd</sup> half of June and going until the 1<sup>st</sup> half of August) and the hours with the most risk of overload are between 1pm – 7pm. The average peak occurs at 4:00pm and there is an estimated 7 days of exposure to overload in 2016.

| Substation              | Relief Needed (MW) | Peak Load (MW) | % Relief   | Customer Count         | Growth Rate/Yr. | Substation Space | Comments  |
|-------------------------|--------------------|----------------|------------|------------------------|-----------------|------------------|---|
| 8RX-Moriches            | 6-10.2             | 57.8           | 10.3-17.6% | 15,382 Resi<br>991 C/I | Flat            | Yes              | Bank & feeder relief, Not including 8RX-746 & 8RX-975 |
| 8T-Eastport             | 6-10.2             | 42             | 14.3-24.3% | 8,236 Resi<br>831 C/I  | Flat            | Yes              | Bank & Feeder relief                                  |
| Total<br><i>Minimum</i> | 6-10.2             | 99.8           | 6-10.2%    | 25,440                 | Flat            | Yes              | Total Relief Required                                 |

### Plainview to Ruland Rd 69 kV Circuit Project:

Install a new 69 kV transmission line from Ruland Road to Plainview substations with breaker replacements and additions at Ruland Road substation. The overload can be alleviated by implementing load relief project at Plainview or Woodbury substation. The required amount of load relief is depending on the project implementation year. Note that due to load growth in these two substations it requires additional 1.5-2 MW load relief per year after project



implementation. The estimated exposure to overload is 13 days in 2017. According to historical data, it mostly happened during the month of July, where the most significant risk of overload is observed approximately from July 6th to July 22nd. The hours with the highest risk generally fall between 1pm – 4pm during these days and with the typical peak load occurring around 2:00pm. (See chart below)

| <b>Year</b> | <b>Substation</b>                              | <b>Relief<br/>Need<br/>(MW)</b> | <b>Area<br/>Load<br/>(MW)</b> | <b>% Relief</b>     | <b>Customer<br/>Count</b>              | <b>Comment</b>      |
|-------------|--|---------------------------------|-------------------------------|---------------------|--|---------------------|
| 2015        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-10.5<br>0-10.5<br>10.5        | 64.4<br>24.3<br>88.7          | <16%<br><43%<br>12% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |
| 2016        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-11<br>0-11<br>11              | 64.8<br>24.5<br>89.3          | <17%<br><45%<br>12% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |
| 2017        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-13<br>0-13<br>13              | 65.6<br>24.8<br>90.4          | <20%<br><52%<br>14% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |
| 2018        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-15.5<br>1-15.5<br>15.5        | 66.6<br>25.2<br>91.8          | <23%<br><62%<br>17% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |
| 2019        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-17.5<br>0-17.5<br>17.5        | 67.4<br>25.5<br>92.9          | <26%<br><69%<br>19% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |
| 2020        | 5SK- Plainview<br>5L – Woodbury<br>Total (min) | 0-18.5<br>0-18.5<br>18.5        | 67.8<br>25.7<br>93.5          | <27%<br><72%<br>20% | 10,768 Resi<br>1,383 C/I<br>12,151 Tot | Total<br>Substation |