Janet M. Audunson, P.E., Esq.
Assistant General Counsel

November 26, 2018

VIA ELECTRONIC DELIVERY

Honorable Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza, 19th Floor
Albany, New York 12223-1350

RE: Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV)

NATIONAL GRID RFP FOR NON-WIRES ALTERNATIVE SOLUTIONS FOR PINE GROVE SUBSTATION

Dear Secretary Burgess:

In accordance with the requirements of New York Public Service Law ("PSL") Section 27, Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid") hereby submits for filing in Case 14-M-0101 the Request for Proposal ("RFP") for Non-Wires Alternative ("NWA") Solutions for an area of electrical stress served by the Pine Grove Substation in the Town of Cicero in Onondaga County, to be formally issued no later than November 27, 2018. With this RFP National Grid is soliciting proposals for NWA solutions defined in the attached RFP document.

Please direct any questions regarding this RFP to:

Derek Salisbury
Lead Buyer – Energy Innovations
Global Procurement
National Grid
40 Sylvan Road
Waltham, MA 02451
Tel.: 781-907-2095
Mobile: 781-674-6949
Email: derek.salisbury@nationalgrid.com

Thank you.

Respectfully submitted,

/s/ Janet M. Audunson

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Assistant General Counsel

Enc.

cc: Tammy Mitchell, DPS Staff, w/enclosure (via electronic mail)
Marco Padula, DPS Staff, w/enclosure (via electronic mail)
Denise Gerbsch, DPS Staff, w/enclosure (via electronic mail)
Michael Summa, DPS Staff, w/enclosure (via electronic mail)
Carol Sedewitz, w/enclosure (via electronic mail)
Pamela Echenique, w/enclosure (via electronic mail)
Mark Harbaugh, w/enclosure (via electronic mail)
Cathy Hughto-Delzer, w/enclosure (via electronic mail)
Robert Sheridan, w/enclosure (via electronic mail)
Daniel Marceau, w/enclosure (via electronic mail)
Carol Teixeira, w/enclosure (via electronic mail)
Marie Schnitzer, w/enclosure (via electronic mail)
Derek Salisbury, w/enclosure (via electronic mail)
Steven Hopengarten, w/enclosure (via electronic mail)

nationalgrid

Request for Proposal (RFP)

Non-Wires Alternative Solutions
Project Development Services

Pine Grove Substation
Town of Cicero, NY

Contents

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 territories. As a part of providing this service, National Grid is pursuing the potential implementation of Non-Wires Alternatives (NWA) solutions in its Niagara Mohawk Power Corporation d/b/a National Grid (the "Company") service territory in Upstate New York. Such implementation aligns with principles set forth by the NYS Public Service Commission (PSC) in Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV).

A NWA Solution is any strategy that addresses an electrical system need, such as peak demand management or reliability, with a solution that does not involve building new transmission and distribution (T&D) lines or substation infrastructure. NWA solutions can be any one type or combination of distributed energy resources (DER), *i.e.*, energy efficiency (EE), demand response (DR), energy storage systems (ESS), or distributed generation (DG), that can be deployed individually or as a portfolio. This RFP seeks to identify third-party-provided NWA solutions. The ideal bidders have a planned project, or an existing project that can be adapted or expanded, that would participate in NY's energy market, located in the Company's geographic area of need. The Company is seeking to enter into either (1) an Energy Services Agreement (ESA) with the selected bidder(s) for a portion of the energy (or other DER services) provided by their project(s) to meet the Company's identified electrical system need(s) as described in this RFP and/or (2) a construction services agreement with the selected bidder(s) whereby bidders would construct and sell a turnkey solution to National Grid to meet its electric system need(s) ("Construction Services Agreement") .

This RFP is open to all NWA approaches that have the potential to provide NWA solutions in the area(s) identified in the problem description. National Grid has several long term goals in consideration (in alignment with state, federal, and internal ambitions) that impact the viability of any given proposal. These include National Grid's *Northeast 80x50 Pathway* (a greenhouse gas (GHG) emissions reduction blueprint),[1] New York's aggressive goal to integrate 1,500 MW of energy storage by 2025,[2] and other goals associated with REV.[3]

Bidders are encouraged to team up to offer a portfolio solution using multiple technologies, sizes, and implementation schedules, if this would provide the best value proposition. Proposed solutions that meet all of the requirements stipulated in this RFP are preferable, either provided by a single vendor or through a proposed portfolio partnership specified in the proposal. Partial solutions that provide a reasonable portion of the solution may be considered where National Grid can independently identify other partners to create a full solution.

This RFP provides a project overview, including a detailed project statement, technical requirements, a map with locational information, and context regarding project economics. The RFP also provides detailed instructions for bidders, including the required elements and format for proposal and evaluation criteria, and an explanation of National Grid's Benefit-Cost Analysis (BCA) Handbook v2. As outlined in the RFP Schedule section of this document, bidders will have

[1] This paper presents an integrated blueprint for National Grid affiliates in New York and New England to reduce GHG emissions deeply below 1990 levels while supporting economic growth and maintaining affordability and customer choice. The blueprint combines several mutually-reinforcing strategies that together provide a clear pathway to significant emissions reductions and signal a paradigm shift in the way we all relate to energy with the aim of achieving greater collaboration within the Northeast on this pressing and critical issue. *Available at* http://news.nationalgridus.com/wp-content/uploads/2018/06/80x50-White-Paper-FINAL.pdf

[2] *See* https://www.nyserda.ny.gov/All%20Programs/Programs/Energy%20Storage/Achieving%20NY%20Energy%20Goals/The%20New%20York%20State%20Energy%20Storage%20Roadmap

[3] *See* https://rev.ny.gov/goals/

the opportunity to submit questions that assist in developing responsive proposals of NWA solutions. Please see the RFP Timeline Schedule for dates associated with RFP milestones. The specific delivery terms and conditions will be negotiated with the successful bidder(s) vendor and culminate in a formal contract.

PINE GROVE SUBSTATION OVERVIEW

Problem Statement

The loading at the Company's Pine Grove Substation serving the Town of Cicero area has increased to a level at which it is projected to be overloaded to 100% (or higher) of its emergency rating (given an outage on one of the station transformer banks). The Company is evaluating alternatives to reduce the area load in order to maintain or improve reliability performance. This project is located in the New York Independent System Operator (NYISO) Load Zone C.

National Grid is seeking NWA solutions that could potentially provide delivery infrastructure avoidance value or other reliability and operational benefits. The area being considered for an NWA solution is located north of the City of Syracuse in northern Onondaga County.

Technical Requirements – Pine Grove Substation

Problem Statement	
Description	Load on the Pine Grove Transformer Bank (TB) 1 will be at or over 100% summer emergency rating at peak over the next ten (10) years upon a loss of TB2
Technical Information	TB1 Summer Normal = 37.37 MVA Summer Emergency = 42.22 MVA 6.23 MVA of feeder tie capacity

Solution Requirements	
Technical Requirements[4]	Maintain loading on Pine Grove Substation below TB1 Summer Emergency rating, such that in the event of an outage on TB2, TB1 is not overloaded **Need:** 10 MW of Load Relief from 2021 – 2031
In Service Date[5]	June 2021
Maximum MWh need per day[6]	49 MWh
Duration per call[7]	Up to 12 hours
Lifetime[8]	10 years minimum
Call Response Time[9]	24 hours load notice, 5 minute response time requirement
Days of Week Needed[10]	Weekdays and Weekends
Time of Day[11]	12:00-23:00

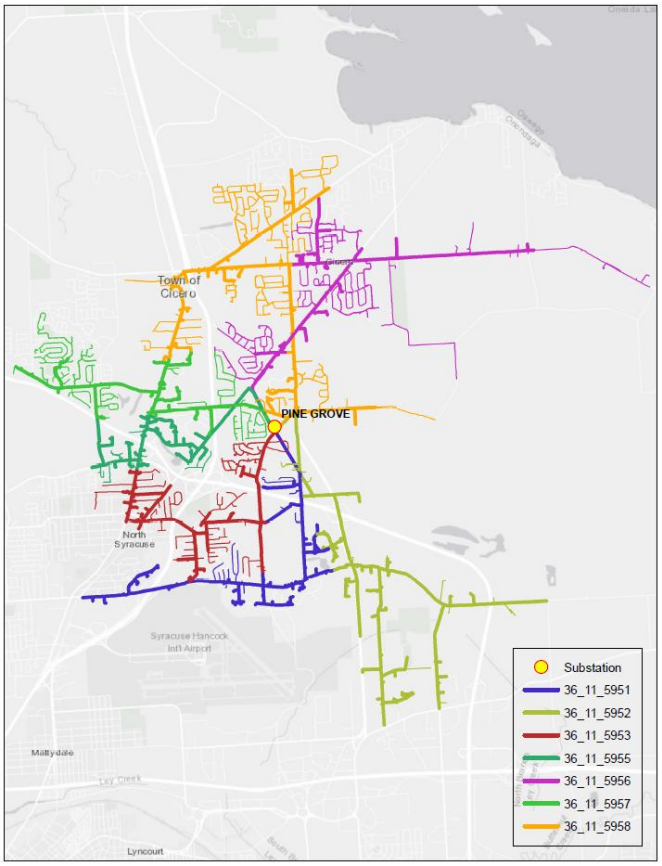
[4] Description of criteria to be met by solution.
[5] Date the NWA must be in place to solve need.
[6] Largest continuous 24-hour need of DER (calculated by adding average hourly demand over every 24-hour period, assuming average demand would be reduced by the feeder tie capacity after 4 hours).
[7] Longest continuous need of DER (calculated from projections).
[8] Term of contract to defer traditional asset(s) solution.
[9] Lead time between a request coming in from a National Grid operator to when the DER asset can provide relief. In this case, the developer would be notified of a *potential* overload 24 hours ahead of time, but would only be *required* to operate given a contingency event, within 5 minutes of notice from the National Grid operator.
[10] An indication of when DER would typically be called on (*e.g.*, weekdays).
[11] Earliest and latest possible times of need by utility (based on projections, not continuous hours, see 'Duration per Call')

Number of Times Called per Year[12]	Up to 44
Minimum Period between Calls[13]	24 hours
Consecutive Days Called[14]	Up to 19

Map and Locational Information

Any DER location downstream of the target feeder getaways (*i.e.*, where the feeder leaves the substation) has the potential to solve the loading issue, pending a full interconnection study. See below feeder map.

NOTE: Subject to changes in forecasted needs and solution pricing, as well as any other applicable costs and benefits, National Grid is targeting the procurement of a DER solution that could supply the substation load in its entirety or a large portion thereof. During normal operation (blue sky), any excess power could be exported to the Company's system depending on such factors as economics, portfolio fit, etc.



Project Economics

The estimated net present value of deferring the traditional solution for ten (10) years (Approximated Value) is $13,800,000 (calculated using the Weighted Average Cost of Capital (WACC) in the BCA Handbook v2 of 6.53% as the deferral rate). This Approximated Value is intended to be used as a gross estimate of the financial order of magnitude to enable bidders to develop competitive value propositions. The Approximated Value is based on the current planning level estimate for the traditional solution. Design of the traditional solution by National Grid will continue throughout the NWA bid evaluation process, so the Approximated Value is subject to change. The Approximated Value is the sum of

[12] Calls per year based on annual overloads seen in projections.
[13] Least amount of time vendor would be given between operator calls.
[14] Most consecutive days needed by utility (based on projections).

the Avoided Generation Capacity Costs and Avoided Distribution Capacity Infrastructure, typically the two largest benefits in the BCA (see Benefit Costs Analysis section later in this document for more details). Please also note that the BCA considers numerous costs and benefits in addition to bid price and the deferral value of the traditional project.

RFP SCHEDULE (ESTIMATED)

Tentative Date	Milestone
November 26, 2018	Issue RFP
December 17, 2018	Pre-bid teleconference
February 11, 2019	RFP responses due
March 20, 2019	Expect to complete initial general and technical review; non-selected bidders notified
April 5 , 2019	Expect to complete preliminary BCA – Short List; non-shortlisted bidders notified
April 9, 2019	All bidders notified of their status
TBD	Expect to begin interconnection application process (a Coordinated Electric System Interconnection Review (CESIR) takes up to 60 business days to complete)
TBD	Expect to complete negotiations
TBD	Expect to file implementation plan with PSC
June 1, 2021	Anticipated resource In-Service Date

INSTRUCTIONS FOR BIDDERS: PROPOSAL REQUIREMENTS

Please provide a concise written proposal under 50 pages (excluding appendices). Bidders are encouraged to identify optionality provided by their solution designed for average/optimized load in conjunction to peak/requested load (as described in Problem Statement above). Please provide sufficient detail in your proposal as to how your firm can perform each of the required categories below. Proposals that do not provide the requested information below may be disqualified by National Grid. Bidders must submit their proposals in the following format:

Executive Summary

- Summary description of strategy(ies) and technology(ies) the bidder is proposing to implement to solve the problem.
- Summary cost information, including: annual cost for the operating period of ten (10) years and any incremental operating expense, clearly defined incremental operating cost.

The Executive Summary of the bidder's proposal shall include, where applicable, the information in the template below:

Information Required	Value
Annual ESA Fee ($)	
Cost ($/kWh) (if ESA)	
Cost (if Construction Services Agreement)	
Annual Additional Proposed Fees, if applicable ($/kwh)	
Total Annual Fees based on X annual operating hours, if applicable ($)	
Guaranteed MW available per year	
Guaranteed MWh available per year	
Guaranteed MW available through 10-year contract period	
Guaranteed MWh available through 10-year contract period	
Improvements to CAIDI and/or SAIFI[15] when applicable	

Please also summarize:

- Depending on the proposed solution, a proposed ESA payment structure/schedule and cadence or a proposed construction payment structure/schedule and cadence. National Grid will not provide a full upfront payment.

[15] Customer Average Interruption Duration Index and System Average Interruption Frequency Index, respectively.

- Material exceptions or additions to National Grid's term sheet (see Appendix I of this RFP). Only a limited number of exceptions will be considered.
- After shortlisting bidders, the Company may request proposals to be resubmitted with commercial pricing based on event performance.

Experience

- Firm's or team's core business and organizational structure (including parents and partners, if any).
- Firm or team development and operations service offerings, qualifications, and relevant project experience.
- If a team is proposing a portfolio solution, include company names and identify which company will be the lead overall.
- At least three references of prior industry specific work that is similar in nature and relevant to solution proposed. References should include:
    - Client contact information
        - Project location
        - Description of the solution provided
        - Commercial operation date
        - Construction/implementation timeline
        - Any other relevant information supporting and validating the proposed solution in response to this RFP
- Financial statements for the past three years should be included as an appendix to the bidder's RFP proposal.
- Identify legal claims made against the firm and/or proposed partners' companies in the past ten-year period and explain the resolution or status of such claims.

Project Execution Team:

- Execution Team organization chart with position descriptions.
- Please identify key roles and the experience of the employees that will be working directly with National Grid (resumes should be included as an appendix to the bidder's RFP proposal).

Project Plan and Schedule

Detailed plan to implement the solution(s) including:

- Execution strategy
    - Customer acquisition and marketing plan, if applicable
    - Proof of project finance, or explanation of finance strategy with explanation of current status
    - Project Management Methodology:
        - Key milestones/detailed timeline from contact execution to implementation
        - Detailed proposed construction schedule, if applicable
        - National Grid system outage requirements to install your proposed solution
        - Risk mitigation methodology and schedule recovery approach
        - Project reporting approach, *i.e.*, Measurement & Verification (M&V)
    - Operation and Maintenance plan, if applicable
- Cut-off date by which an agreement between the parties must be fully executed in order for the project to be in-service before June 1, 2021 (applicable for DERs).
- Approximate dates by which 50% and 100% of the estimated load reduction will be achieved (applicable for DR solution)

- Bidders are encouraged to propose scalable solutions and associated pricing that meets the load growth in MW and MWhs on a schedule that matches the forecasted load grow curves and table provided herein. National Grid would have the option of not moving forward with future capacity additions in cases where the forecasted load growth does not occur.

Project Approach and Methodology

- Technology/Solution description and performance characteristics including:
    - Solution(s) description overview
    - Electrical one-line diagram of proposed interconnection to the Company's system
    - Geographical map showing approximate/proposed location(s) of the proposed solution(s)
    - Accurate and validated (preferably independently verified) performance characteristics of the proposed solution(s)
    - Clear definition of all communication and information technology (IT) interfaces with the Company
    - Proposed protection scheme that will integrate with the Company's system
    - Control scheme to maintain system stability and transition from grid to island modes (if applicable)
    - Any reactive power/voltage support capabilities and response time
    - The minimum and maximum level of load reduction available
    - The possible capacity (kWh) or duration of relief (hrs.)
    - The interval at which each DER can be called upon reliably
    - Any constraints that would impact the DER availability
    - Performance characteristics of the technology(ies) proposed
    - Description of the flexibility and applicability of the technology(ies)
    - Availability and reliability
    - The ability of proposed solution(s) to provide permanent load relief will be considered by National Grid if so identified in bid proposal, along with dependability and benefits that would be provided to the grid
    - Detailed energy benefits associated with proposed solution(s)
- Specification and details associated with implementing the proposed solution(s) including but not limited to:
    - Location of the facility
        - Approximate footprint including height, width, and required clearances
        - Status of real property acquisition and control with confirmation that cost and schedule for real property acquisition and control is considered in your overall business plan
    - Confirmation that cost and schedule for interconnection to the Company's system is considered in your overall business plan
        - Interconnection costs can vary drastically depending on generation type, circuit characteristics, and interconnection location. In general, inverter-based technologies may not require protection and control to the same level as rotating machines due to operating characteristics and fault current potential. Inverter-based generation will require at least a recloser and a rotating machine will likely require direct transfer trip. The Pine Grove transformers will likely require zero-sequence voltage ($3V_0$) installation (for ground fault overvoltage protection) for any DG interconnection that meets the defined need *(i.e.*, 10 MW). Lastly, distribution upgrade requirements and costs can vary widely depending on the work that must be done on the existing distribution system to support the interconnection of DG (generally remaining under the 'Max hosting capacity' values discussed later in this RFP will minimize this cost). A full interconnection application and study (*i.e.*, CESIR) is required to determine actual upgrades and estimates for a specific project. Bidders are advised to look to amortize interconnection cost over the full spectrum of revenue streams their project will

generate and only expect the NWA project to cover its proportional ratio of interconnection cost. Determine applicable federal, state, local, and tribal permitting requirements, and confirm that cost and schedule for permitting is considered in your overall business plan.

- Community acceptability; identify potential project benefits and adverse impacts; confirm that stakeholder management (and associated cost) is considered in your overall business plan.
- Operation and maintenance (O&M) plan for DER, confirm that cost and schedule for O&M is considered in your overall business plan.
    - Describe net cost to power/charge the DER, if applicable. The Company's commercial rates are available at: https://www9.nationalgridus.com/niagaramohawk/business/rates/rates.asp; confirm cost of charging for any proposed ESS is considered in your overall business plan.
    - Identify lifecycle expectancy for all major components including but not limited to batteries, inverters, solar photovoltaic (PV) panels, and generators; confirm component replacement is considered in your overall business plan.
    - Identify changes in equipment capacity degradation over expected life time; confirm capacity degradation is considered in your overall business plan.
    - Identify specific equipment warranties for all major components including but not limited to batteries, inverters, solar panels and generators.
    - Confirm facility will be maintained according to manufacturer's specifications in order to maintain manufacturer's warranty protections.
    - Define any applicable M&V procedures, forecasting and notification processes, and/or means of integration with utility monitoring, communications, and control systems.
    - Identify risks, barriers, and/or challenges with your proposed solution (*e.g.*, permits, land acquisition, potential environmental, acoustic or aesthetic impacts, construction risk, operating risk); confirm management of risks, barriers, and/or challenges is considered in your overall business plan.

Commercial

- Provide the following project finance information (if applicable, depending on whether solution is for an ESA or Construction Services Agreement) (and if it is not available, plans to acquire such data and resources):
    - Amount and type of financing for the project (sources and amount of debt and equity, including any plans to utilize tax credits or other public funding sources);
    - A description of construction and operating period financing for the project including expected debt to equity ratios, debt coverage ratios, liens, and restricted covenants;
    - Any report of an independent engineer or other consultant regarding the project prepared for, or as part of, the project financing; and
    - The identification and description of other transactions by the bidder that have been leveraged, either prior or subsequent to the construction or commercial operation date, including, without limitation, all financing arrangements for such transactions, loan to equity ratios, coverage ratios, liens, and restrictive covenants agreed to by the bidder.
- Under-performance Penalties damages – bidders should note that failure to deliver load relief committed to as part of any solution may result in Penalties, to be defined in the applicable agreement:
    - The successful bidder may be required to furnish security to National Grid that demonstrates, among other things, financial capabilities to pay penalties in the event that the respondent fails to satisfy its obligations under the ESA.

Commercial related to Energy Services Agreement

- Considering the entire cost of the project is not intended to be remunerated by the ESA between the vendor and the Company, provide the complete installed costs of the proposed project, including costs which may not accrue directly to National Grid for payment, but which the company will utilize to evaluate the proposal in performing a BCA.
- Provide the ESA fee proposed to be charged to National Grid for contracting services over the contract period. This will be the bid or asking price. National Grid strongly suggests that bidders provide proposed project pricing in the format of a fixed monthly, quarterly, or annual price over the life of the project, including any and all escalators or other fees during that time.
- Overview of proposed project's market participation strategy and how the NWA ESA would support that strategy; in particular, provide assurance that NWA would be available for contracted services.
- If the bidder plans to receive compensation from other New York programs (*e.g.* , New York State Energy Research and Development Authority (NYSERDA) programs), the bidder shall disclose plans/status/magnitude of award and the likelihood of prevailing in such an award within their Proposal;
- Identification of all exceptions to the ESA Term Sheet along with suggested alternative terms.
- Identify any exceptions to the RFP proposal requirements (if any).

EVALUATION CRITERIA

Proposals will be evaluated and scored on the basis of the following criterion as relevant to National Grid's evaluation:

1. Proposal Content and Presentation - Information requested has been provided by the bidder and is sufficiently comprehensive to allow for evaluation.
2. Functionality - The extent to which the proposed solution would meet the defined functional requirements and the ability to provide demand reduction during the peak time and area of need.
3. ESA Fee Schedule or Construction Services Agreement Cost –National Grid is required to conduct a BCA as outlined in the BCA Handbook v2 filed with the PSC. The completed BCA will be used to evaluate the proposed solution fees to determine the feasibility of implementing the solution as an NWA. Further detail on the BCA can be found at the end of this RFP.
4. Environmental impacts – including but not limited to acoustic, aesthetic, air, water, and soil impacts.
5. Economic impacts – temporary and permanent jobs created, economic development impacts, and property tax payments.
6. Credit - Bidder's capability and willingness to perform all of its financial and other obligations under the relevant agreement, including, without limitation, bidder's ability to provide Performance Assurance under the relevant agreement. National Grid will consider bidder's financial strength, as determined by National Grid, as well as any credit assurances acceptable to National Grid that bidder may submit with its Proposal.
7. Bidder Qualifications – the experience of the bidder, any Engineering, Procurement and Construction (EPC) contractor, prime subcontractors and, if applicable, O&M operator or other entity responsible for the development, construction, or operation of the proposed solution. This may include experience (demonstrated track record) of successfully developing and operating similar projects in North America and within New York State.
8. Project Viability - the probability that the solution(s) associated with a Proposal can be financed and completed as required by the relevant agreement. This will include an assessment of the degree of detail and feasibility of schedules (*e.g*., engineering, procurement plan and lead times, equipment delivery, construction, start-up and testing), plans (procurement plan, site access/equipment delivery), engineering and construction plans/subcontractors, existing labor agreements in place, labor availability, construction facility and laydown, water

supply, wastewater discharge), adequacy of financing during construction and operation of the plant, lender commitment provided, equity commitment provided, the controls provided to prevent construction cost overruns, debt coverage ratios are adequate, interest rates and fees are reasonable, quality and completeness of financing package, ownership structure, interest rate risk, whether Bidder has commitment letters from project participants or financial institutions indicating that the project will be able to obtain financing, and Bidder's project financing experience. The project's progress in federal, state, and local permitting processes will also be evaluated, including its Environmental Characteristics. The project's progress in the gas and electric interconnection processes will be evaluated. The quantities and potential benefits/costs to National Grid and to society associated with all of these characteristics will be considered.

9. Technical Reliability – the type of technology and the equipment being proposed. National Grid will examine whether there is high reliability due to plant construction design that is tried and proven with historical evidence of high availability in comparison to North American Energy Reliability Corporation (NERC) national averages, with significant additional enhancements that may add to the plant's availability, such as multiple systems and redundancy. This review shall also include plant performance parameters for equipment being proposed such as heat rate and capacity estimates, availability guarantees, unplanned outage factor guarantee, fixed and variable O&M costs, start-up times, and costs. Plant operations factors should also be provided for equipment being proposed to include staff training programs, staffing requirements, maintenance support availability, any/all permitlimitations on plant operations, long-term service agreement terms, maintenance outage requirements (*i.e.*, impacts on availability), spare parts, and labor agreements.
10. Acceptance of National Grid's ESA Term Sheet - the degree to which bidder accepts National Grid's proposed term sheet. The RFP evaluation may impute, for the purposes of evaluating an additional amount to bidder's Proposal price to reflect any bidder's proposed modifications to the non-price terms and conditions by the bidder, that result in National Grid incurring additional costs or risks.

BENEFIT COST ANALYSIS

Version 2.0 of the BCA Handbook, which was filed with the PSC by the Company on July 31, 2018, outlines three distinct tests which help evaluate each potential deployment approach from a variety of standpoints.

Test	Key Question Answered	Calculation Approach
Societal Cost Test (SCT)	Is there a net reduction in societal costs?	Compares the costs incurred to design and deliver projects, and customer costs with avoided electricity and other supply-side resource costs (*e.g.*, generation, transmission, and natural gas); also includes the cost of externalities (*e.g.*, carbon emissions and other net non-energy benefits).
Utility Cost Test	Is there a net change in utility system costs and what is the impact of the proposed solution on average customer bills?	Compares the costs incurred to design, deliver, and manage projects by the utility with avoided electricity supply-side resource costs.
Rate Impact Measure	How will utility rates be affected?	Compares utility costs and utility bill reductions with avoided electricity and other supply-side resource costs.

Each test attempts to address the complexities involved in large scale investments with a unique understanding of how utility expense translates into tangible savings and improvement for all impacted parties. Even though the BCA calculations for the three tests have many overlaps, the SCT is generally considered as the primary cost-effectiveness measure.

The BCA handbook v2 further outlines common input assumptions and sources that are applicable statewide and utility-specific inputs that may be commonly applicable to a variety of project-specific studies. For example, it is stated that the after-tax utility WACC should be used as the discount rate across all metrics.

National Grid's BCA Handbook v2 can be referenced using this link:
http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=16-M-0411

PROJECT INFORMATION – PINE GROVE

Problem Statement

The loading at the Company's Pine Grove Substation serving the Town of Cicero area has increased to a level at which it is projected to be overloaded to 100% (or higher) of its emergency rating (given an outage on one of the station transformer banks). The Company is evaluating alternatives to reduce the area load in order to maintain or improve reliability performance. This project is located in the New York Independent System Operator (NYISO) Load Zone C.

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In Service Date[17]	June 2021
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[16] Description of criteria to be met by solution.
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Map and Locational Information

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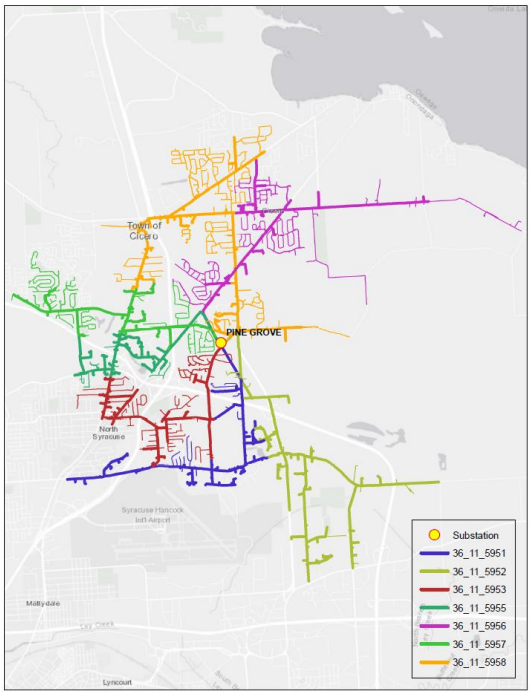
NOTE: Subject to changes in forecasted needs and solution pricing, as well as any other applicable costs and benefits, National Grid is targeting the procurement of a DER solution that could supply the substation load in its entirety or a large portion thereof. During normal operation (blue sky), any excess power could be exported to the Company's system depending on such factors as economics, portfolio fit, etc.



Project Economics

The estimated net present value of deferring the traditional solution for ten years (Approximated Value) is $13,800,000 (calculated using the Weighted Average Cost of Capital (WACC) in the BCA Handbook v2 of 6.53% as the deferral rate).

[20] Term of contract to defer traditional asset(s) solution.
[21] Lead time between a request coming in from a National Grid operator to when the DER asset can provide relief. In this case, the developer would be notified of a *potential* overload 24 hours ahead of time, but would only be *required* to operate given a contingency event, within 5 minutes of notice from the National Grid operator.
[22] An indication of when DER would typically be called on (*e.g.*, weekdays).
[23] Earliest and latest possible times of need by utility (based on projections, not continuous hours, see 'Duration per Call').
[24] Calls per year based on annual overloads seen in projections.
[25] Least amount of time vendor would be given between operator calls.
[26] Most consecutive days needed by utility (based on projections).

This Approximated Value is intended to be used as a gross estimate of the financial order of magnitude to enable bidders to develop competitive value propositions. The Approximated Value is based on the current planning level estimate for the traditional solution. Design of the traditional solution by National Grid will continue throughout the NWA bid evaluation process, so the Approximated Value is subject to change. The Approximated Value is the sum of the approximate benefits a project meeting the defined need could provide per the BCA (see Benefit Costs Analysis section later in this document for more details). Please also note that the BCA considers numerous costs and benefits in addition to bid price and the deferral value of the traditional project.

Technical Details

Substations & Feeders:

Target substation	**Target feeders**
Pine Gove	All feeders (5951, 5952, 5953, 5955, 5956, 5957, 5958)
Adjacent substation	**Feeder ties**
Bridgeport	16852
Fly Road	26151
Gilbert Mills	24751
Hopkins Road	25358
Wetzel Road	690053, 690055
West Monroe	27451

Transformer Ratings:

Substation	Transformer ID	High side voltage (kV)	Low side voltage (kV)	Nameplate rating (MVA)	Summer Normal rating (MVA)	Summer Emergency rating (MVA)
Pine Grove	1	115	13.2	33.6	38.0	41.0
Pine Grove	2	115	13.2	40.0	45.7	45.7

All of the feeders are supplied from 115kV-13.2kV transformers. The 13.2 kV system is grounded wye.

Customer Demographics:

Feeder	Commercial	Residential	Total
5955	89	400	489
5956	49	609	658
5957	38	599	637
5953	71	1063	1134
5951	82	107	189
5952	55	65	120
5958	96	1046	1142
Total	**480**	**3889**	**4369**

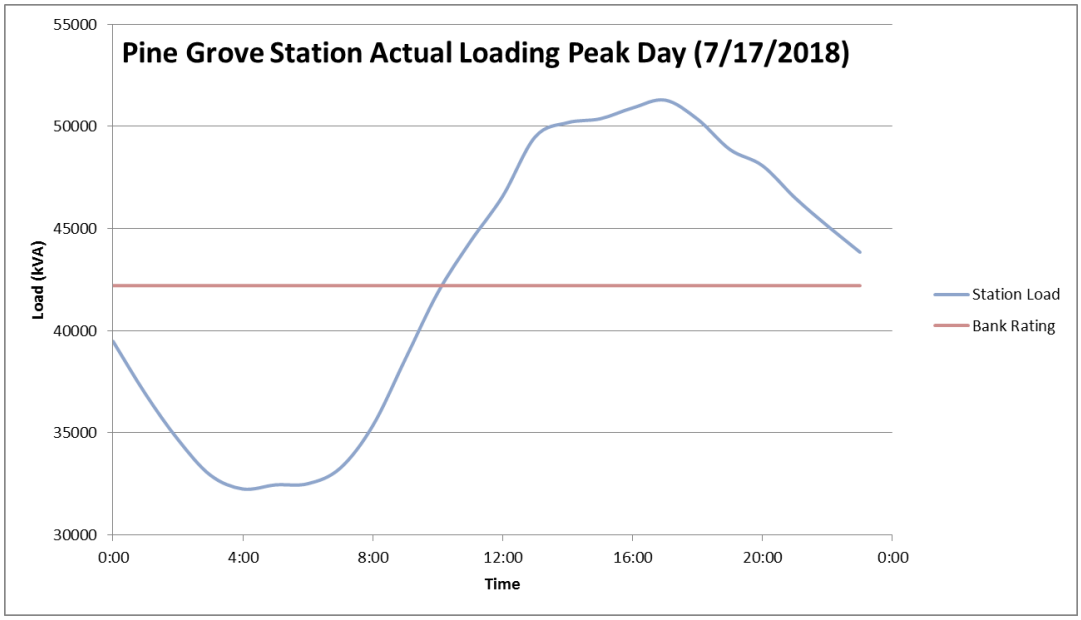
Existing DG interconnected on the Pine Grove feeders:

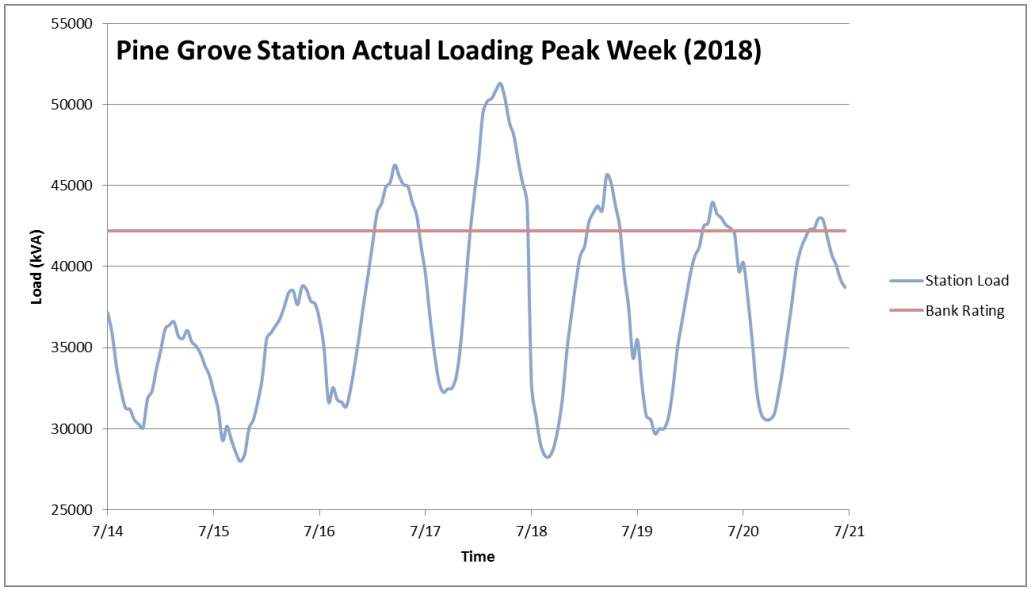
The Pine Grove feeders have a total of 680 kW of connected solar PV as of October 2018.

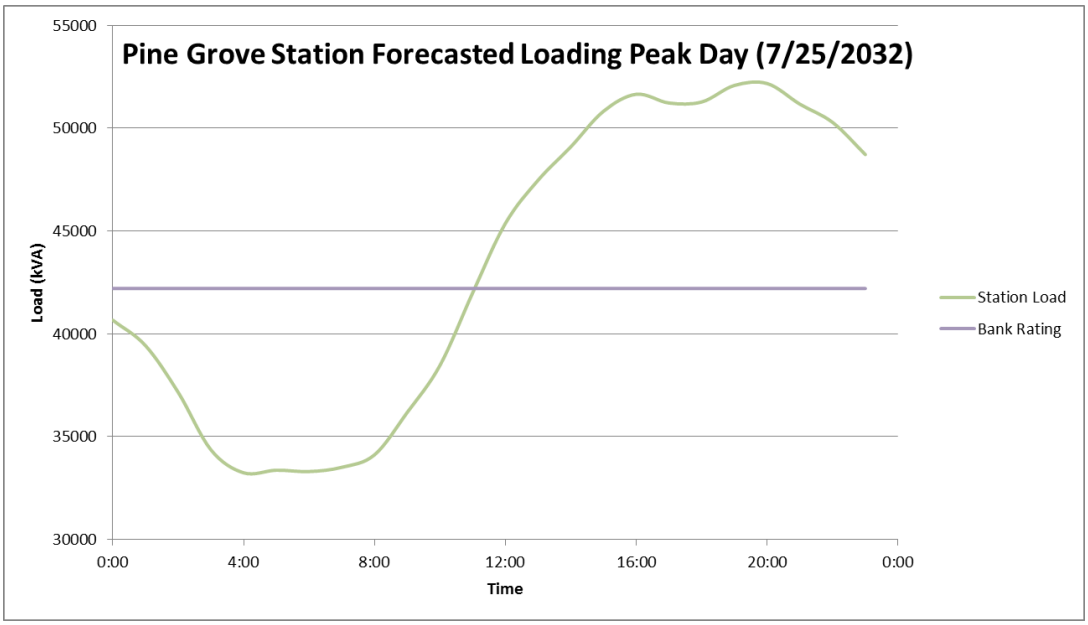
Feeder	DG Connected(kW)	DG in Queue (kW)
5955	10	0
5956	50	0
5957	340	0
5953	30	0
5951	20	0
5952	10	0
5958	130	10
Total	**680**	**10**

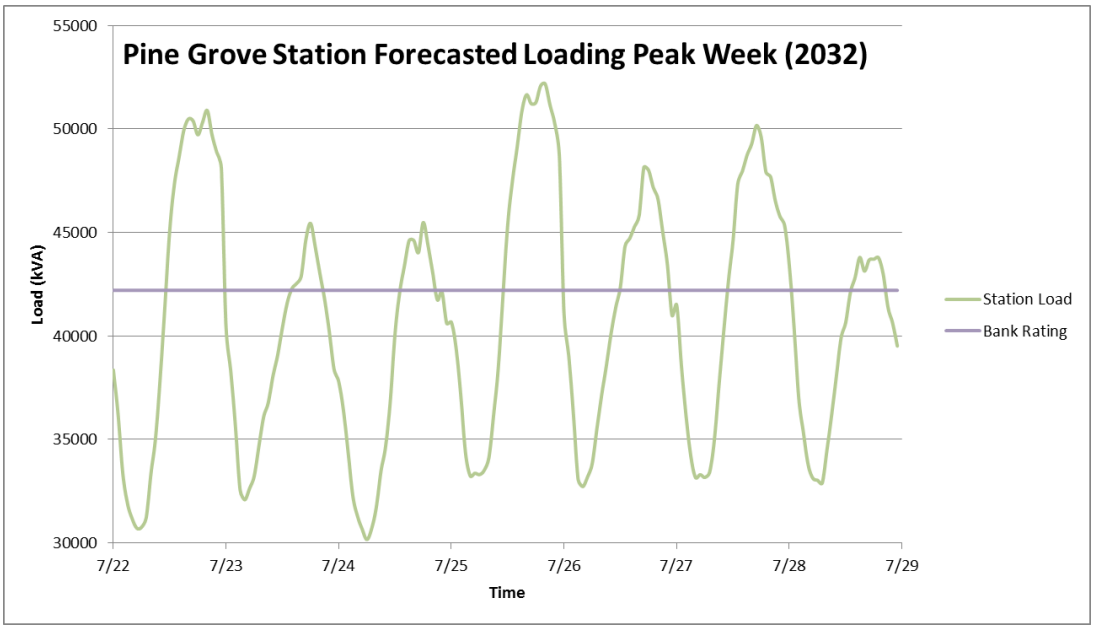
Emergency Loading:

Loading on Pine Grove TB1 is forecasted to be over 100% of the Summer Emergency Rating (42.2 MVA) over the span of 2021-2031 in the event of an outage on TB2 (given peak loading conditions). In the event of this outage, the low side bus tie would be closed, and the entire station's load would have to be supported by TB1. All other facilities' loadings are within their normal equipment ratings. The rating of the transformer is determined by winding and oil temperatures as a result of the transformer physical characteristics and the load cycle. The load forecast in 2031 (highest projected in the forecasted period) is 52 MVA. The 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 hourly load forecast is available as a .CSV file on National Grid's Ariba website. The charts below show the projected load on the transformer bank over the project life (peak day and week) and the peak loading on Company-owned transformer this past summer (peak day and week). Please note station loading charts do *not* account for feeder tie capacity.




Pine Grove Station Actual Loading Peak Week (2018)
55000
50000
45000
40000
35000
30000
25000
Load (kVA)
7/14
7/15
7/16
7/17
7/18
7/19
7/20
7/21
Time
Station Load
Bank Rating


Pine Grove Station Forecasted Loading Peak Day (7/25/2032)
55000
50000
45000
40000
35000
30000
Load (kVA)
0:00
4:00
8:00
12:00
16:00
20:00
0:00
Time
Station Load
Bank Rating



NOTE: Subject to changes in forecasted needs and solution pricing, as well as any other applicable costs and benefits, National Grid is targeting the procurement of a DER solution that could supply the substation load in its entirety or a large portion thereof. During normal operation (blue sky), any excess power could be exported to the Company system depending on such factors as economics, portfolio fit, etc.

Potential Solutions

National Grid is exploring NWA solutions to postpone the required investment in distribution equipment (*i.e.*, the need for a traditional solution. In the case of the Company's Pine Grove Substation, the traditional solution is building a new station (Cicero Station) to support the need of 10 MW.

Several factors determine the ability and cost of implementing NWA to the local electric system. Actual system needs will depend on several different factors, including weather conditions, unavailability of other resources, and coincidence factors. For an accurate assessment, actual interconnection requirements and costs (to be assessed by National Grid) are defined by considering the specific project location, operating characteristics, and timing.

The installation and/or procurement of DG and/or DR could reduce the overall demand at critical periods and thereby addressing the emergency (N-1) overloading at the Pine Grove Substation. Integration of DG, ESS, EE measures, and/or DR resources of 10 MW would reduce the peak loading on the Pine Grove TB1 below 100% of its summer emergency rating (given an outage of TB2) for the next ten years given the present load forecast. The DER would be notified when loads were forecasted to exceed 100% of the transformer's summer emergency rating (day-ahead notice). The DER would then be called upon given an outage of TB2 and an overload of TB1 (over the emergency rating according to the aforementioned day-ahead forecast). Although a traditional T&D solution would not be expected to be in-service until 2021, the Company would consider NWA solutions to mitigate the risk as early as 2019. By 2021, 10 MW of DER could be utilized to keep the transformer loading within its summer emergency rating. The Company would consider options with greater quantities of DER to maximize the value of the asset (*e.g.,* to allow the DER provider to participate in NYISO markets). Depending on the nature of the NWA solution proposed, this level of DER penetration may not be possible without creating other system concerns, including potential significant infrastructure upgrades to accommodate the NWA solution. A solution downstream of the transformer is necessary to solve the problem (full details pending an interconnection study (*i.e.*, CESIR)).

Supporting Data

The following tables were derived from the Company's Customer Load Data, which generally covers the 2016 calendar year (exceptions include shorter time periods and/or later start/end date). The following should be used for information purposes only. "Max" values represent the peak of the largest single customer while "Avg" values represent the average mean value of all customers on the associated feeder.

Residential kW Analysis

	Avg kW	Max kW
55	1.7	6.8
56	3.0	10.1
57	3.1	10.6
53	2.1	9.5
51	1.7	7.5
52	6.1	257.4
58	2.5	16.3
Total	2.5	257.4

Peaks among commercial users tend to be very high for a few users (as demonstrated by differences between maximum and average yearly values).

Residential kWh Analysis

Feeder	Avg kWh	Max kWh	Avg kWh Summer	Max kWh Summer	Avg kWh Winter	Max kWh Winter
55	17.2	86.2	2872.4	14729	1805.7	14182
56	31.1	121.0	5668.9	24162	3258.3	17824
57	29.8	186.6	4650.4	37095	3236.8	16606
53	23.0	178.6	3525.1	23858	2547.8	29920
51	23.0	132.2	3588.9	22589	2412.0	14158
52	39.8	2616.1	6106.0	383360	4369.1	274400
58	26.1	828.5	4753.9	134400	2763.8	99360

Commercial kW Analysis

Feeder	Avg kW	Max kW	Max kW Summer	Max kW Winter
55	26.8	1447.3	1447.3	1047.5
56	17.9	329.9	327.8	315
57	52.6	814.8	814.8	559.8
53	17.5	360	360	224.6
51	37.1	911.2	911.2	627.1
52	33.0	764	764	692
58	16.6	873.6	873.6	739.2
Total	**26.9**	**1447.3**	**1447.3**	**1047.5**

Commercial kWh Analysis

Feeder	Avg kWh	Max kWh	Avg kWh Summer	Max kWh Summer	Avg kWh Winter	Max kWh Winter
55	279.9	13165.4	45010.5	2010408	26946.5	1375440
56	138.5	3409.8	22864.9	371148	12905.2	447630
57	580.3	12795.4	92652.5	1932822	57178.1	1293580
53	160.0	3943.9	26160.1	631544	15869.2	385916
51	423.1	22265.3	69225.0	3919185	40535.6	1734143
52	330.3	8732.4	47408.8	1247359	37820.2	992274
58	162.3	8423.6	25600.8	1284050	16834.5	1111560
Total	**277.2**	**22265.3**	**43910.1**	**3919185**	**27719.6**	**1734143**

System Data Portal

Access the National Grid System Data Portal for more information that is available online (such as hosting capacity, DG in queue, and more) via the following link: https://ngrid.apps.esri.com/NGSysDataPortal/NY/index.html

List of Acronyms

Acronym	Definition
$3V_0$	Zero-Sequence Voltage
BCA	Benefit Cost Analysis
CESIR	Coordinated Electric System Interconnection Review
DER	Distributed Energy Resources
DG	Distributed Generation
DR	Demand Response
EE	Energy Efficiency
EPC	Engineering, Procurement, and Construction
ESS	Energy Storage Systems
ESA	Energy Services Agreement
IT	Information Technology
LSRV	Locational System Relief Value
M&V	Measurement & Verification
MW	Megawatt
MWh	Megawatt Hour
NERC	North American Energy Reliability Corporation
NWA	Non-Wires Alternatives
NYISO	New York Independent System Operator, Inc.
O&M	Operations and Maintenance
PSC	Public Service Commission
PV	Photovoltaic
REV	Reforming the Energy Vision
SCT	Societal Cost Test
TB	Transformer Bank
T&D	Transmission and Distribution
WACC	Weighted Average Cost of Capital

Appendix I Summary of Terms and Conditions for an Agreement

The following is a summary of the proposed terms and conditions of an agreement between the parties. This summary is not exhaustive. Where indicated, certain sections apply to only an ESA or a Construction Services Agreement. This document is for discussion purposes only and does not represent or constitute any commitment by the Company to enter into an agreement. This Summary of Terms and Conditions does not contain all material matters upon which agreement would need to be reached in order for any party to bind itself to the Transaction.

Contractor [NWA Vendor]	Contractor is a XXX corporation engaged in the [Insert Contractor's business description here: _____].
Company	Niagara Mohawk Power Corporation d/b/a National Grid ("Company") is a public gas and electric utility that owns and operates energy infrastructure in [enter location description].
Definitions	"Completion Date" is the date on which the Project is commissioned by obtaining applicable certifications or passing applicable inspections, is operating within agreed parameters and otherwise meeting standards of operation and care requirements. "Energy Services Fee" means the monthly fee constituting payment for the delivery of energy and Services associated with the Project. *(ESA)* "FERC" means the Federal Energy Regulatory Commission. "Good Utility Practice" means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act, to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region in which the Project is located. Good Utility Practice shall include, but not be limited to, NERC (as defined below) criteria, rules, guidelines and standards, NPCC (as defined below) criteria, rules, guidelines and standards, NYSRC (as defined below) criteria, rules, guidelines and standards, and NYISO (as defined below) criteria, rules, guidelines and standards, where applicable, as they may be amended from time to time including the rules, guidelines and criteria of any successor organization to the foregoing entities. When applied to Contractor, the term "Good Utility Practice" shall also include standards applicable to a utility generator connecting to the distribution or transmission facilities or system of another utility. "Letter of Credit" shall mean an irrevocable, non-transferable, standby letter of credit, issued by a Qualified Institution utilizing a form acceptable to the Party in whose favor such letter of credit is issued. All costs relating to any Letter of Credit shall be for the account of the Party providing that Letter of Credit. "Letter of Credit Default" shall mean with respect to an outstanding Letter of Credit, the occurrence of any of the following events (a) the issuer of such Letter of Credit shall fail to be a Qualified Institution; (b) the issuer of the Letter of Credit shall fail to comply with or perform its obligations under such Letter of Credit if such failure shall be continuing after the lapse of any applicable grace period; (c) the issuer of the Letter of Credit shall disaffirm, disclaim, repudiate or reject, in whole or in part, or challenge the validity of, such Letter of Credit; or (d) the Letter of Credit shall expire or terminate or have a Value of $0 at any time the Party on whose account that Letter of Credit is issued is required to provide Credit Support hereunder and that Party has not Transferred replacement Credit

	Support meeting the requirements of this Agreement; provided, however, that no Letter of Credit Default shall occur in any event with respect to a Letter of Credit after the time such Letter of Credit is required to be cancelled or returned in accordance with the terms of this Agreement. "NERC" means the North American Electric Reliability Corporation or any successor organization. "NPCC" means the Northeast Power Coordinating Council, Inc. or any successor organization. "NYSRC" means the New York State Reliability Council, L.L.C. or any successor organization. "NYISO" means the New York Independent System Operator, Inc., an organization formed in accordance with FERC orders to administer the operation of and, provide equal and open access to, the transmission system of New York State, and to maintain system reliability. "Qualified Institution" shall mean a major U.S. commercial bank or trust company, the U.S. branch office of a foreign bank, or another financial institution, in any case, organized under the laws of the United States or a political subdivision thereof having assets of at least $10 billion and a credit rating of at least (A) "A3" from Moody's or "A-" from S&P, if such entity is rated by both S&P and Moody's or (B) "A-" by S&P or "A3" by Moody's, if such entity is rated by either S&P or Moody's but not both. "Parent Guarantee" must be issued by an entity with credit ratings of at least BBB- by S&P and Baa3 by Moody's ("Guarantor") in a form acceptable to Company. "Services" means the provision of services to Company associated with the non-wire alternative ("NWA").
Transaction	A Transaction consists of execution of an agreement for the provision of Services to for the [XXXX] project (the "Project"). The agreement describes the Project, the Services to be performed by Contractor, as well as the standards to which Contractors must perform, during the Term of the agreement. Contractor has provided a detailed proposal for the delivery of Services for the Project. Based upon this proposal, Contractor and Company will execute an agreement containing: A detailed description of the Project equipment and installation; A detailed description of the Services to be performed by Contractor including a delivery schedule and standards of operations; A fee and liquidated damages schedule; Security and insurance requirements; Non-Disclosure Agreement; A mutually-agreed construction schedule (if applicable); O&M schedule (if applicable); Other terms as described herein.
Term, termination , suspension, and time of performance	An ESA will continue for [10] years from the Project Completion Date. An ESA will contain provisions addressing potential contract extensions for NWA distributed energy resource assets that have a life expectancy greater than the Term. A Construction Services Agreement will have a term of [3] years. Warranties and O&M work shall extend to [7] years beyond the end of the Term. Company may terminate for cause or for its convenience upon reasonable notice to

	Contractor. The Company may at its sole discretion interrupt, suspend or delay execution of all or any part of the Project for any reason whatsoever upon written notice to the Contractor specifying the nature and expected duration of the interruption, suspension or delay.*)* Time of performance is of the essence.
Fee Schedule	At the beginning of each calendar month following the Completion Date, Company shall pay Contractor a monthly Energy Services Fee. *(ESA)* Standard payment terms are "2% 10, Net 30." Company shall pay invoices upon receipt of a properly documented and approved invoice. Company reserves the right to utilize a variety of payment channels, including but not limited to Virtual Card, ACH, Ghost Cards and P-Cards. Contractor agrees that it will not impose a surcharge on Company's payment. The Company may withhold payment of an invoice, to the extent and for the time reasonably necessary, in the Company's sole judgment and discretion, to protect the Company from loss caused by, but not limited to: Defective work not remedied; Claims filed or reasonable evidence indicating probable filing of claims against the Company or by the Company or other parties against the Contractor; Failure of the Contractor or Subcontractors (of any tier) to make payments properly to Subcontractors (of any tier) or for material or labor or for any taxes due; Damage to another contractor; Removal and replacement of condemned work and/or material; Incomplete documentation; Inadequate insurance coverage; Disputed work; Environmental damage caused by or exacerbated by Contractor or any Subcontractor; Bonding of a Contractor lien; Failure of the Contractor or any Subcontractors to properly clean up the work site; Damage to utilities caused by Contractor or any Subcontractor; Damage to public or private property caused by Contractor or any Subcontractor; and Liquidated damages assessed to the Contractor. *(Construction Services Agreement)*
Construction Schedule (if needed)	Contractor and Company will agree upon a schedule to construct and install the Project.
Ownership of Environmental Attributes *(ESA)*	Contractor shall own all tax credits, incentives, green tags, carbon off set credits, rebates or any other environmental attributes of the Project. Company agrees to reasonably cooperate with Contractor so Contractor may claim any benefits associated with the environmental attributes of the Project.
Permits and Licenses *(Construction Services Agreement)*	Permits and licenses of a temporary nature necessary for the prosecution of the Services shall be secured and paid for by the Contractor. Unless otherwise specified, permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Company. In either case the Contractor shall be responsible for prosecuting the Work in accordance with the provisions of all applicable permits and licenses.
Risk of Loss *(Construction Services Agreement)*	Risk of loss or damage to any portion of the work shall remain with the Contractor until the Company provides the Contractor with written acceptance of such portion of the work. The Contractor shall bear the risk of loss or damage to any work during its repair, replacement, or cure if the Contractor is responsible for such repair, replacement or cure. The Contractor shall be responsible for the security of all materials and equipment under

<table>
<tr><td></td><td>its custody and control, and unless otherwise stated in the Agreement.</td></tr>
<tr><td>Inspection and quality assurance (Construction Services Agreement)</td><td>The Company reserves the right to inspect all work or any portion thereof, and make or cause to be made all tests required by the agreement.
All work will be subject to the Company's inspection, direction, and approval. The Contractor agrees to furnish all the information pertaining to the work as the Company may require.</td></tr>
<tr><td>Liens/Bonds and Credit Support</td><td>Contractor, for itself and its Subcontractors waives all right to have filed or maintained any mechanics' or other liens or claims for or on account of the services, labor or materials to be furnished under the agreement. Contractor shall pay punctually for all labor, equipment and materials and all liabilities incurred by it in performance of the agreement, and when requested shall furnish the Company with satisfactory evidence such payment.
Contractor shall, at Company's option, be required to post, provide Credit Support with a Letter of Credit and/or a Parent Guarantee covering the payment of, and performance of all Contractor obligations arising under the agreement and to keep the Company's property clear of any encumbrances relating to the agreement. Company may require additional bonds or Credit Support if the value of the agreement, in Company's opinion, is appreciably increased.
Contractor shall not cause or permit any lien or security interest to attach to any real or personal property of Company.
Credit Support: The following items will qualify as "Credit Support" hereunder in the amount noted under "Valuation Percentage":
<table>
<tr><td></td><td>"Valuation Percentage"</td></tr>
<tr><td>Cash</td><td>100%</td></tr>
<tr><td>Letters of Credit</td><td>100% unless either (i) a Letter of Credit Default shall have occurred and be continuing with respect to such Letter of Credit, or (ii) twenty (20) or fewer Business Days remain prior to the expiration of such Letter of Credit, in which cases the Valuation Percentage shall be 0%.</td></tr>
</table>
</td></tr>
<tr><td>Insurance</td><td>Contractor will obtain the appropriate insurance to protect the Project through design, construction, implementation, and maintenance, including for the duration of the Term.</td></tr>
<tr><td>Indemnity</td><td>Contractor agrees to indemnity provisions including the duty to indemnify, defend and hold harmless Company, its employees, officers, successors and assigns from third party claims (including, IP claims, reasonable attorneys' fees and expenses of any kind).</td></tr>
<tr><td>Confidentiality</td><td>Contractor shall enter into Company's standard Non-Disclosure Agreement.</td></tr>
<tr><td>Background checks and subcontractors</td><td>The Contractor shall, and shall require its Subcontractors to comply with the Background Check Requirements. (Construction Services Agreement)

The Contractor shall seek preapproval from Company before engaging any Subcontractors and shall be wholly and solely responsible for all acts of its personnel and Subcontractors while engaged in the Work.</td></tr>
</table>

Sale or Lease of Project (ESA)	In the event the Project is sold or leased, Company may, at its sole option: Consent to assign all ESA obligations to buyer/tenant. Such consent may only be given if the buyer/tenant has similar or better creditworthiness and operating credentials and the buyer/tenant accepts such assignment of the ESA; *or* Terminate the ESA and Contractor shall pay Company an amount equal to the agreed liquidated damages amount for the remainder of the Term.
Certain Specified Events of Default By Contractor	Contractor fails to perform any material obligation undertaken in the ESA (which includes doing something Contractor agreed not to do, such as alter the Project without Company's approval) and such failure continues for a period of fourteen (14) days after written notice by Company to Contractor. Contractor provided any false or misleading information to obtain the ESA. Contractor assigns the ESA without Company's prior written consent. Contractor is bankrupt. Contractors fails to satisfy its obligation to provide Credit Support when due.
Certain Company Remedies for Contractor Events of Default; Liquidated Damages	Contractor acknowledges that the Project is providing critical energy Services. If Contractor is in default under the agreement, Company may take one or more of the following actions. Terminate the agreement; Withhold payment under the agreement; Take any reasonable action to correct Contractor's default or to prevent Company's loss, including injunction or step in rights; Require Contractor, at Contractor's expense, to remove Project; and Proceed, by appropriate legal action, to enforce performance of the agreement and to recover damages for Contractor's breach.
Assignment	Not assignable by Contractor without consent of Company. Assignable by Company to an affiliate without consent of Contractor.
Representations and Warranties	Contractor agrees to employ Good Utility Practice to maintain, repair, refurbish and preserve the Project in good working order, capable of producing electricity as designed. Customary representations and warranties for transactions of this type, including each party's authority to enter into the agreement. Contractor shall provide training to Company personnel if requested by Company. In addition to all other warranties, express or implied in fact or law, the Contractor warrants that for a period of 10 years: 1) the construction Services shall conform to all applicable requirements of the agreement, 2) all construction Services shall be consistent with industry standards and the intended use by the Company; 3) all construction Services shall be performed by qualified, competent, and experienced personnel, and in accordance with the highest standards of care, skill, and diligence, and consistent with recognized and sound engineering and construction practices and procedures; and 4) that the construction services shall be free from defects in design, workmanship, and materials of any kind. Items of materials, equipment or otherwise shall not be substituted for those specified, nor shall "or equal" items be furnished pursuant to the agreement without the Company's prior written approval. If the construction Services provided by the Contractor or its Subcontractors fails to

	conform to the warranties set forth above, in addition to all other remedies available at law or equity, the Contractor shall, at its sole expense and at the Company's option, promptly: 1) repair or replace the nonconforming construction Services; 2) refund the amount of money paid by the Company for such nonconforming construction Services; or 3) reimburse the Company for the cost of repairing, or replacing the nonconforming construction Services or having the nonconforming construction Services repaired or replaced by a third party. *(Construction Services Agreement)*
Safety	Contractor shall be solely responsible and assume all liability for the safety and supervision of its employees and other persons engaged in the Project. Contractor shall comply with all applicable Federal, state and local safety directives, requirements, rules, regulations, laws and ordinances, whether the same are in force upon the execution of the ESA or may in the future be passed, enacted or directed, including without limitation, compliance with the safety regulations and standards adopted under the Occupational Safety and Health Act of 1970 (OSHA). If applicable, Contractor shall, and shall require its Subcontractors and their employees to comply with Company's safety requirements as they may be amended from time to time and to take all necessary safety and other precautions to protect property and persons from damage or injury arising out of performance on the Project, whether the same are in force at the execution of the agreement or may in the future be passed, enacted or directed.
Compliance with Laws	Contractor shall, in connection with the Services and the Project, comply with all applicable federal, state and local laws, ordinances, rules, regulations, codes, permits, licenses, authorizations, and orders of any governmental body, agency, authority, or court having jurisdiction over Company or the supply of the Services.
Environmental Compliance	Contractor shall conduct all Services and the Project in such a manner to minimize the impact upon the natural environment and shall comply fully with all applicable federal, state and local laws, ordinances, rules, regulations and permits for the protection and preservation of the environment, and all applicable environmental policies and practices prescribed by Company, including without limitation, the Resource Conservation and Recovery Act, the Hazardous Materials and Transportation Act, OSHA, the New York Environmental Conservation Law, regulations of the Environmental Protection Agency, the Department of Transportation and the New York Department of Environmental Conservation issued pursuant thereto, and the terms of Company's Special Conditions of Contract - Environmental, if incorporated in the ESA by Company.
Dispute Resolution	Parties waive the right to a jury trial. Except for claims arising out of 1) gross negligence, intentional misconduct, fraud, breach of law, 2) a breach of a party's confidentiality obligations, 3) claims arising out of property damage or bodily injury, or 4) a party's indemnification obligations, Contractor and Company waive any rights to consequential, punitive incidental, exemplary, special, or indirect damages (lost profits or revenue shall not be considered special or indirect damages.)
Jurisdiction and Choice of Law	New York
Publicity	Contractor shall immediately notify Company of all communications from regulatory agencies, the media or the public, including, but not limited to, notices, postings, letters, telephone calls or visits. If a Notice of Noncompliance or any other official correspondence is received by Contractor from a regulatory agency, a copy of the notice or correspondence shall be provided to Company within twenty for (24) hours of its

	receipt. Contractor shall not, without Company's prior written consent, publish any information pertaining to the agreement or the Project, whether during the term of the agreement or thereafter.
Audit/Records	Contractor shall maintain records relating to the Project and the agreement, including any records relating to the employment or hiring of minorities and/or females, until (i) three years after the expiration of the last expiring warranty, or (ii) the expiration of any period for which Company or its Affiliates are required, by any regulatory agency, to have such records maintained, whichever is later. Contractor agrees to make such records available to Company or its authorized representative at no cost to Company or its authorized representative for inspection or audit at any time during such period.
Force Majeure	Any delay of either party in the performance of its required obligations hereunder shall be excused if and to the extent caused by unprecedented weather conditions, fire, explosion, riot, war, strike by the Company's or its Affiliates' employees, court injunction or order, federal and/or state law or regulation, or order by any federal or state regulatory agency, but only to the extent that: 1) such events are beyond the reasonable control of the party affected, 2) such events were unforeseeable by the affected party and the effects were beyond its reasonable efforts to prevent, avoid or mitigate, 3) the affected party uses every reasonable effort to prevent, avoid or mitigate the effects, 4) prompt written notice of such delay be given by such affected party to the other; and 5) the party affected uses its best efforts to remedy the resulting effects in the shortest practicable time. Upon receipt of such notice, if necessary, the time for performing the affected activities shall be extended for a period of time reasonably necessary to overcome the effect of such delays. Such extension shall be the sole remedy and compensation for each force majeure event. Notwithstanding the foregoing, the Company shall have the right to terminate the Agreement for its convenience.