



**Guidelines for Consideration of Non-Wires Alternatives
in Distribution Planning**

nationalgrid

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1.0 Change Control and Approvals

Authorized by:

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Amendments Record:

Version	Date	Modification	Authors	Review and Approvals
1	Feb. 2011	Initial Document	D. Walters D. Smith P.-A. Löf D. Matthews L. Perry	P. Renaud B.J. Walker E.H. White C. Warren
2	March 2020	Major Revision Distribution Only	C. Fournier M. Schnitzer M. Chase A. Bataineh	D. Fuda D. Marceau E. Prifti C. Sedewitz

This document will be reviewed annually.

2.0 Purpose

The purpose of this document is to provide a guideline for consideration of Non-Wires Alternatives (NWA) as part of the distribution planning process for National Grid's distribution and sub-transmission capital projects or system needs. It provides a screening and analysis framework by which to evaluate and compare NWA solutions to wires solutions.

These guidelines are not requirements; deviations from the guidelines are allowed on a case-by-case basis. The guidelines will be updated as necessary based on the Company's experience in analyzing and implementing NWA projects. Figure 1 provides a high-level overview of the planning and NWA process, which is described in more detail in subsequent sections of this document.

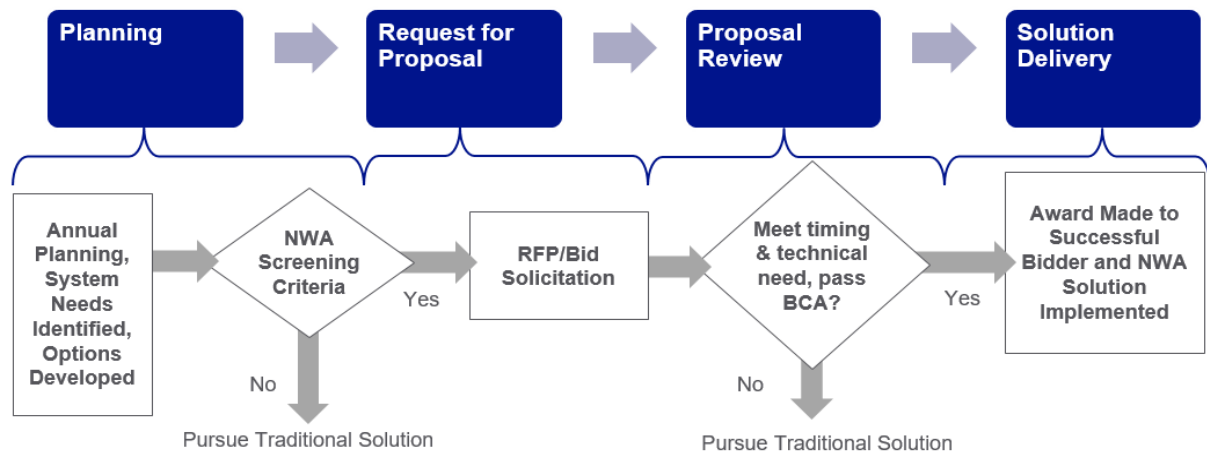


Figure 1: Overview of Planning and NWA Process

3.0 Key Contributors

The groups within National Grid that have primary responsibility for implementing these guidelines are Distribution Planning and Asset Management and NWA Solutions, both part of the Electric Asset Management department in the Electric Business Unit.

Distribution Planning and Asset Management is responsible for assessing and identifying needs on the distribution and sub-transmission systems and subsequently developing and recommending wires solutions and proposing a preferred option based on all solutions available (wires and non-wires).

Non-Wires Alternative Solutions is responsible for developing, advancing, and analyzing potential NWAs based on the defined need and requirements provided by Planning.

4.0 Planning

Emerging system needs are identified as early as possible. This allows for comprehensive consideration of the NWA and wires solutions as part of the electric distribution system planning process.

4.1 System Needs Identified

The need is identified as a result of studies, operational issues, process safety issues, occupational safety issues, regulatory requirements, and/or customer requests. Planning develops a Needs Case, fully justifying the system need(s) and concerns of the study area.

4.2 Options Developed

Planning identifies potential wire options based on system modeling and the conditions outlined in the Needs Case. Planning criteria, Company standards, and forecasts are inputs into the scoping stage as options are developed. Options will be screened for feasibility and evaluated considering technical, economic, environmental, regulatory, reliability, and scheduling factors.

4.3 NWA Screening Criteria

Where a system need has been identified, Planning performs an initial screening for NWA, considering the criteria listed in Table 1 below. Potential NWA opportunity screening and analysis are included as a standard part of the electric distribution system planning process. An NWA shall be considered as an option to defer the wires solution for a specific period of time. These criteria are expected to be modified as appropriate based on the lessons learned from ongoing NWA efforts.

Criteria	New York and Massachusetts	Rhode Island
Project Type Suitability	Project types include Load Relief and Reliability. Other types have minimal suitability and will be reviewed as suitability changes due to State policy or technological changes.	Project types include Load Relief and Reliability. The need is not based on Asset Condition. If load reduction is necessary, then it will be less than 20% of the total load in the area of the defined need.
Timeline Suitability	Start of construction is at least 18 months in the future.	Start of construction is at least 30 months in the future.
Cost Suitability (Cost of Wires Solution)	Greater than or equal to \$500K	Greater than \$1M

Table 1: Criteria for Identifying and Evaluating Locations for NWA Solutions

When Planning recognizes the need to consider an NWA according to the NWA screening criteria, Planning shall provide technical documentation as necessary to the NWA Solutions team for them to pursue an NWA opportunity. The technical needs statement, preferred wire option(s), and parameters as a result of the engineering analysis will be reviewed by the NWA Project Manager. In addition, the NWA Project Manager will investigate integration of National Grid's Demand Response (DR) and Energy Efficiency (EE) programs as necessary.

Hybrid NWA opportunities are also considered during screening. Hybrid NWAs are an NWA solution, or a combination of NWA solutions, that addresses part of a specified system need with the rest of the system need addressed by a wires solution.

To evaluate the cost differences between options, it may be necessary to use a Net Present Value (NPV) calculation based upon costs and benefits of the NWA solution as well as the avoided costs of not implementing some (in the case of a hybrid solution) or all of the wires solution.

It is possible that no NWAs are considered feasible for a given need, in which case a justification for ending the consideration of an NWA solution is documented by Planning and developed by the NWA Project Manager with consensus from Planning. By its discretion, National Grid may propose to pursue a project that does not pass one or more of these criteria if there is reason to believe that a viable NWA solution exists, assuming the benefits of doing so justify the costs.

5.0 Request for Proposal

The NWA Project Manager develops and coordinates the NWA Request for Proposal (RFP) release to start the NWA Solicitation Process to inform stakeholders/potential partners. The RFP process will include the following:

5.1 Electrical System Need

The parameters defined as a result of the engineering analysis of the need will be outlined in the NWA RFP. The RFP will include information such as:

- Problem Statement and general description of the electrical system need(s)
- System data
 - Timing, duration of the need, and time of day the need occurs
 - Aggregated customer load profiles (no individual customers are identified) and characterization of customers (how many residential and C&I customers)
- Area and electrical system description
 - Equipment listings, voltages, and mapping illustrating the area of need
- Approximate value of NWA solution

5.2 Competitive Procurement

The NWA Project Manager will work with Procurement who is responsible for hosting the Request for Proposal (RFP) events on National Grid's online procurement platform (ARIBA), managing bidder communication, and coordinating any legal documentation with bidders. The RFP will be posted in National Grid's Ariba procurement system and available on the National Grid NWA website¹. Clarifying questions for the RFP and proposals will only be accepted through the procurement system.

6.0 Proposal Review

National Grid will evaluate the NWA solution bids proposed by vendors using a systematic approach which considers technical and economic factors. A Benefit-Cost Analysis (BCA) will be performed to determine the cost-effectiveness of NWA solutions; jurisdictional BCA methodologies and tools may differ. NWA projects must provide a safe, reliable, and cost-effective solution when compared to the wires solution.



Figure 2: Overview of Proposal Evaluation

Proposals are ranked based on their criteria scores. The number of projects which National Grid will procure is a function of the Proposal price, scoring of Proposals based on evaluation criteria, capability of each Proposal to fully or partially address the NWA solution requirements, and National Grid's final discretion. See below for a summary of the criteria and the process by which the review team will evaluate and prioritize bids.

Proposal Content & Presentation - Information requested has been provided by the bidder and is sufficiently comprehensive and well presented to allow for evaluation.

Developer Experience - 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.

¹ "Non-Wires Alternatives." *National Grid Business Partners*, National Grid USA, Inc., 13 Nov. 2019, www.nationalgridus.com/Business-Partners/Non-Wires-Alternatives/.

Environmental - The Bidder's Proposal shall address impacts including but not limited to acoustic, aesthetic, air, water, and soil impacts, and permitting and zoning considerations.

Project Viability - The probability that the solution(s) associated with a Proposal can be financed and completed as required by the relevant agreement.

Functionality - The extent to which the proposed solution would meet the defined functional requirements such as the ability to provide demand reduction during peak times and within the geographic area of need.

Technical Reliability - The extent to which the proposed type of technology and the equipment would meet the reliability need and can be integrated with utility operations including the ability to monitor and dispatch.

Safety – The National Grid requirement that Bidders recognize safety is of paramount importance. Bidders will be required to provide safety information related to the proposed technology and information regarding safety history.

Customer and Socio-Economic Impacts - The Bidder's Proposal shall address how the proposed technology impacts the customer in addition to temporary and permanent jobs to be created, economic development impacts, and property tax payments.

Scheduling - The Bidder's Proposal shall include proposed timelines outlining milestones and providing sufficient details for each deliverable, including meeting the in-service need date.

Offer Price - The Bidder's Proposal shall be based on project-specific values and financing requirements.

Adherence to Terms - The extent to which the Bidder accepts National Grid's proposed Term Sheet will be taken into consideration. The RFP evaluation may impute an additional amount to Bidder's Proposal to reflect any proposed modifications to the non-price terms and conditions by the Bidder that result in National Grid incurring additional costs or risks. Redlines to the Term Sheet shall be provided by the Bidder as part of its Proposal for review by National Grid during the evaluation period.

Credit - Bidder's capability and willingness to perform all its financial and other obligations under the relevant agreement will be considered by National Grid in addition to Bidder's financial strength, as determined by National Grid, and any credit assurances acceptable to National Grid that Bidder may submit with its Proposal.

7.0 Solution Delivery

NWA projects that satisfy the technical requirements and have a positive BCA will proceed through the internal and external approval process as appropriate per jurisdiction and proposed ownership structure (see Appendix A). Following approval, the NWA project will then enter into contract negotiations. If contract negotiations fail, the preferred wires solution will be pursued.

Further improvements are being incorporated into the NWA solution delivery process as the Company gains more experience with contract negotiations and NWA integration. This process will clearly define responsible, accountable, consulting, and informed parties for each step to maximize the efficiency of the procurement, execution of an agreement with the awarded bidder, implementation, and operation as well as performance of an NWA solution.

APPENDIX A: Potential Ownership Structures

National Grid anticipates that NWA projects will use one or more of the following two potential ownership models.

Model 1: Customer/Third Party-Owned

In this model, National Grid may offer specified payments to the customer(s)/third party(s) providing the NWA for the duration of the expected deferral period. Examples include:

1. Third-party solution provider(s) constructs, owns, operates, and maintains Distributed Generation asset(s) and/or system(s) that defer a wires investment for a specified period of time. The Company enters into a contractual arrangement whereby the third-party(s) agrees to reduce load when dispatched by the Company (e.g., an energy storage solution).
2. Customer(s) participates in a program needed to defer a wires investment. The Company enters into a contractual arrangement with customer(s) directly or through a third-party DR aggregator (e.g., targeted demand response). The Company pays the customer via applicable program incentives for participating in the program/project and/or the third-party DR aggregator for owning, operating, and maintaining the program (e.g., the demand response platform).
3. Customer(s) provide the asset(s) needed to defer a wires investment. The Company enters into contractual arrangement directly with the customer(s). The Company pays the customer for their commitment to provide, operate, and maintain the asset(s) or for their commitment to participate in the project. This example may also align with the second example regarding program participation (e.g., National Grid's Bring Your Own Battery program as part of a targeted EE program for an NWA).
4. Customer(s) installs and operates a long-term sustainable load relief mechanism or measure with financial assistance from the Company (e.g., more efficient lighting in a targeted EE program as part of an NWA).

Model 2: Company-Owned

In this model, National Grid may procure solutions through a third party or install NWA asset(s) and/or systems that defer a Distribution investment. These investments may be permanent (like a renewable generator) or temporary (like mobile generation). Examples of a Company ownership² model include:

1. National Grid installs DER for a specified period of time and owns and operates as needed.
2. National Grid enters into a contractual arrangement with a third party to construct distributed generation asset. National Grid owns, operates, and maintains the asset.
3. National Grid enters into a contractual arrangement with a third party to operate and maintain Company-owned distributed generation asset(s) and/or system(s).

² Company ownership of generation is subject to legal restrictions on the Company's ownership of generation in each jurisdiction.

APPENDIX B: Definitions

Benefit Cost Analysis (BCA) – Cost assessment methodology which may include: Societal Cost Test (SCT), Rate Impact Measure (RIM), and/or Utility Cost Test (UCT).

Demand Side Management (DSM): Actions that reduce consumer requirements for electric service, including energy efficiency measures and load control measures.

Distributed Energy Resources (DER): Distributed Generation and Electric Energy Storage.

Distributed Generation (DG): An electric power source connected on the customer side of the meter. A small-scale electric power source connected on the wires utility's side of the meter.

Energy Storage System (ESS): The means (such as chemical, kinetic, potential energy, etc.) to store energy that will later be converted to electricity.

Non-Wires Alternative (NWA): Any electric system investment, whether an action, strategy, program, technology solution, or a combination thereof – such as distributed generation, energy storage, energy efficiency, demand response, and grid software and controls – with the intent to defer or replace the need to construct or upgrade components of a distribution and/or sub-transmission system, or “wires investment”. An NWA is required to be cost-effective compared to the wires investment and meet the specified electric grid need.

Net Present Value (NPV): A metric used in capital budgeting to estimate the profitability of potential investments through the summation of the present value of a series of present and future cash flows. This NPV analysis may include the costs associated with the acquisition of (1) load-reduction through demand-side management (DSM) and distributed energy resources (DER) incremental to the base-line forecast; (2) load-serving capability from a wires solution; or (3) a combination of the above, as well as the avoided costs of not implementing some or all of the wires solution.

Request for Proposal: Method of competitive procurement for a solution coordinated with the procurement team.

Wires Solutions: The construction or replacement of sub-transmission and distribution facilities (e.g., sub-transmission lines, distribution lines, transformers, system reconfiguration, and reactive supply equipment) to increase the capability of the system to provide reliable operation of the system, the expansion of system automation to more efficiently use existing system capacity, and the application of DER on Company sub-transmission and Distribution assets.

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