

Avangrid Networks, Inc.

PJM Pre-qualification Application – Designated Entity

Submitted: September 19, 2018

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1. INTRODUCTION

Avangrid Networks, Inc. (“Avangrid Networks”) submits this application (the “Application”) to the PJM Interconnection, LLC (“PJM”) Office of the Interconnection to fulfill the pre-qualification criteria outlined in Section 1.5.8(a) of Schedule 6 of the Amended and Restated Operating Agreement of (“Operating Agreement”).

Avangrid Networks subsidiaries include eight electric and natural gas utilities serving 3.1 million customers in New York and New England. Avangrid Networks’ electric operating subsidiaries include: Central Maine Power Company (“CMP”), Maine Electric Power Company, Inc. (“MEPCO”), New York State Electric & Gas Corporation (“NYSEG”), Rochester Gas and Electric Corporation (“RG&E”), and The United Illuminating Company (“UI”). Avangrid Networks operating subsidiaries are transmission owners in the ISO-New England Inc. (“ISO-NE”) and New York Independent System Operator Inc. (“NYISO”) control areas, operating approximately 8,500 miles of electric transmission lines, 71,000 miles of electric distribution lines, and 904 substations.

Avangrid Networks is a subsidiary of AVANGRID, Inc. (NYSE:AGR) (“AVANGRID”). AVANGRID is a diversified energy and utility company with more than \$31 billion in assets, and has operations in 24 states. AVANGRID operates regulated utilities and electric generation facilities through two separate lines of business, Avangrid Networks, and Avangrid Renewables. Avangrid Renewables is engaged in the marketing, development, and operation of approximately 6.6 gigawatts of electric generation capacity throughout the United States. An AVANGRID simplified organizational structure is attached to this Application.

2. APPLICANT INFORMATION

Legal Name of Applicant:

Avangrid Networks, Inc.

Applicant Corporate Address:

Avangrid Networks
180 Marsh Hill Road
Orange, CT 06477

Applicant Primary Contact:

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3. TECHNICAL AND ENGINEERING QUALIFICATIONS

Avangrid Networks subsidiaries have an extensive history of electric transmission and delivery that dates back more than 150 years.

Avangrid Networks utilizes a comprehensive project management program that describes the roles, responsibilities and activities during the different project stages for the efficient execution of electric capital projects. Project stages cover the full end to end process including: initiation, definition, planning, purchasing, delivery, construction and installation, commissioning, and close out. The Avangrid Networks project management policy is comprised of different process elements within Project Management Institute Body of Knowledge (“PMBOK®”) and ISO 21500 utilizing global standards and best practices in project management with respect to specific process steps, milestones, and work results. Detailed standard processes are defined according to the business type, volume, risk, and complexity of the project.

In addition, the AVANGRID companies rely on extensive internal subject matter expertise for the implementation of superior project management policies and best practices to comply with project requirements. Each operating company has detailed business implementation plans and expertise, which would be the basis for performing the specific project implementation tasks.

On January 2018, the total number of existing in-house personnel engaged in project implementation was 271 with a total of 3,242 equivalent years of experience in project implementation.

The number of substations owned by Avangrid Networks’ electric transmission owning subsidiaries is reflected in Table 1. Total capability of power transformers owned by Avangrid Networks’ operating subsidiaries is 26,353 MVA.

Table 1. Substations owned

Number of Substations Owned	Solely Owned	Jointly Owned
Globally (U.S. and international):	217	2
In the United States of America:	217	2
AC (<100 kV ¹):	11	0
AC (100 kV < 200 kV):	179	0
AC (230 kV):	7	0
AC (345 kV):	20	2
AC (500 kV):	0	0
AC (765 kV):	0	0
HVDC Converters:	0	0

¹ kV level of substations represents the high-side terminal design voltage.

Table 2 displays the current, voltage, and miles of transmission lines owned and operated by Avangrid Networks

Table 2. Miles of transmission lines owned

Miles of Transmission Line Owned	Solely Owned <i>(facilities owned by Applicant)</i>	Jointly Owned <i>(facilities owned by multiple entities)</i>
Globally (U.S. and international):	8,456	372
United States of America:	8,456	372
AC Lines (<100 kV ²):	4,135	0
AC Lines (100 kV < 200 kV):	3,048	26
AC Lines (230 kV):	235	0
AC Lines (345 kV):	1,038	213
AC Lines (500 kV):	0	0
AC Lines (765 kV):	0	0
HVDC Lines:	0	133

Detailed operating company business implementation plans are available upon PJM's request.

4. TRANSMISSION FACILITY DEVELOPMENT, CONSTRUCTION, OPERATION AND MAINTENANCE - DEMONSTRATED EXPERIENCE AND RECORD

Avangrid Networks companies rely on an extensive subject matter knowledge base, policies and practices to implement project requirements. The company would acquire any of the capabilities or competencies required to perform the specific project implementation tasks evidenced by the previous projects the company has constructed. Each operating company has detailed business implementation plans and expertise, which would be the basis for performing the specific project implementation tasks.

Operations and Maintenance:

Avangrid Networks' companies have extensive experience in operation and maintenance of electric transmission and distribution assets.

Table 3. Assets under operation

Transmission Operating Voltage	Miles	Circuits	Substations
<100 kV	4,135	550	11
100 kV <200 kV	3,048	304	179
230 kV	235	13	7
345 kV	1,038	27	20
Total Transmission	8,456	894	217

NEW YORK:

- NYSEG transmits and distributes electric power and natural gas. The company provides electric service to nearly 888,000 customers in 42 counties in upstate New York. NYSEG owns, 4,463 miles of electric transmission lines, 35,136 miles of electric distribution lines, and 436 substations.

² kV level of transmission lines represents design voltage.

- RG&E transmits and distributes electric power and natural gas. The company provides electric service to 374,000 customers in 9 counties in New York State. RG&E owns 1,025 miles of electric transmission lines, 8,953 miles of electric distribution lines, and 153 substations.

MAINE:

- CMP serves nearly 615,000 electric customers across 11,000 square miles in central and southern Maine. CMP owns 2,788 miles of transmission lines, 23,092 miles of distribution lines, and 280 substations.

CONNECTICUT:

- UI, a subsidiary of UIL Holdings Corporation, and serves 328,000 electric customers in 17 communities across 335 square miles in southern Connecticut. UI owns 130 miles of transmission line, 3,485 miles of distribution lines, and 34 substations.

Development and Construction:**NEW YORK:**

NYSEG's most recent experience with design, development, finance and construction of transmission includes:

- 2010 -Ithaca Transmission Project - completed construction and achieved commercial operation of a new 345 kV/115 kV Clarks Corners Road Substation, rebuild of the 115 kV transmission line #945 from Etna to Lapeer, and construction of a new 15 mile, 115 kV line #715 from Etna to the Clarks Corners Road Substation.
- [*] - Corning Valley Project - completed construction, and achieved commercial operation of a new 230 kV/115 kV Stoney Ridge Substation, and construction of a 9.6 mile 115 kV transmission line from West Erie Avenue.
- 2016 - Mechanicville Reinforcement Project - completed construction, without operational failure, and placed a new 115/34.5kV substation with two distribution circuits in service.
- 2016 - Eelpt Road Substation New Transformer - completed construction, without operational failure, and placed a new power transformer and associated improvements in service.
- 2017 - Auburn Transmission Project - completed construction, without operational failure, and placed a new 115kV transmission line and 115kV transmission upgrade in service.

RG&E's most recent experience with design, development, finance and construction of transmission includes:

- 2008 - Rochester Transmission Project - completed construction, and placed over 38 miles of new 115 kV transmission line in service, primarily located between Station 80 to Station 7, which allowed the retirement of Russell Station at a cost of over \$100M.
- 2011 - completed construction, placed a new 115 kV Line from Station 424 to Station 135 in service.
- 2012 - completed construction, and placed a new 115 kV Line from Station 13A to Station 135 in service.
- 2015 - Station 95 New Transformer - completed construction, without operational failure; and placed in service a new power transformer and associated improvements.
- 2016 - Station 218 to Station 199 New 34.5kV Transmission Line - completed construction, without operational failure; and placed in service a new 34.5kV transmission line.
- 2017 - Ginna Retirement Transmission Alternative - completed construction, without operational failure; and placed in service a major upgrade to Station 122 and Station 80 including replacement of 345kV/115kV transformers, replacement and reconfiguration of 345kV substation equipment, and upgrade of medium voltage transmission lines.

- In Progress - Rochester Area Reliability Project (RGET) (2017-2021) new and rebuild of ~24 miles of 345kV/115-kV transmission lines plus upgrades at five substations.

MAINE:

CMP's most recent experience with the design, development, finance and construction of transmission includes construction of approximately 500 miles of new or rebuilt transmission facilities in Maine, including most notably the successful completion of the Maine Power Reliability Project ("MPRP"). MPRP was a \$1.4 billion investment to reinforce Maine's transmission grid for reliability purposes through upgrades to the existing system and construction of new high voltage transmission lines and substations from Eliot, Maine to Orrington, Maine. In 2010, CMP obtained all necessary permits and approvals to construct the MPRP. CMP and its contractors began construction of the project in August 2010. MPRP required construction of 184 miles of new 345 kV transmission lines and 100 miles of new 115 kV transmission lines, the rebuild of 440 miles of existing transmission lines, the construction of six new substations and major expansions to six existing substations. MPRP was the largest construction project in Maine's history and required five years to complete. MPRP was placed in service on time and constructed under budget.

CMP is currently developing the New England Clean Energy Connect ("NECEC"), a High Voltage Direct Current (HVDC) transmission solution capable of delivering 1,200 MW of clean energy generation from Québec to the ISO-NE Control Area. NECEC was selected in the Request for Proposals for Long-Term Contracts for Clean Energy Projects issued by the Massachusetts electric distribution companies on March 31, 2017 pursuant to Section 83D of Chapter 169 of the Acts of 2008 (the Green Communities Act), as amended by chapter 188 of the Acts of 2016, An Act to Promote Energy Diversity (the Energy Diversity Act). NECEC's expected in service date is December 2022.

In addition, CMP owns 78.3% of MEPCO jointly with Emera Maine (21.7%). MEPCO owns and operates a 345-KV transmission interconnection extending from Wiscasset, Maine to the Maine-New Brunswick international border at Orient, Maine, where it interconnects with the New Brunswick Power Corporation's facilities in the province of New Brunswick, Canada. The MEPCO Section 388 Rebuild is a replacement of all structures within the 50-mile section of the 345kV transmission line between Wiscasset and Orient Maine. The project includes replacing all tangent structures during energized conditions. Angle and dead-end structures will be replaced with short outages and structures and will be designed to accommodate a larger conductor. The project cost is estimated at \$102M and is scheduled to be completed on time and on budget.

CONNECTICUT:

UI's most recent transmission design, development, finance and construction experience includes:

- Middletown to- Norwalk (M2N) Project: \$300M project that consisted of constructing a new 345 kV gas insulated switchgear (GIS) substation (Singer) and 6.2 miles of double circuit 345 kV underground cable from the Stratford, Connecticut side of the Housatonic River to Singer Substation in Bridgeport, Connecticut. Singer 345 kV Substation is comprised of sixteen 345 kV circuit breakers arranged in a breaker-and-one-half configuration, two three-phase 600 MVA 345kV/115 kV autotransformers, four 345 kV variable tap shunt reactors, two 115 kV GIS termination structures and a control building. Singer Substation serves as a switching station connecting the 345 kV cables between East Devon 345 kV Substation and Norwalk 345 kV Substation. In addition, Singer Substation, through two 600 MVA 345 kV / 115 kV autotransformers supplies the tie to the Pequonnock 115 kV Substation, as well as the reconfigured connection for the Bridgeport Energy electric generating facility. M2N was placed in service in December 2009.

- Grand Avenue 115 kV Switching Station Rebuild: This \$60M project consisted of constructing a new 115 kV Grand Avenue Switching Station, adjacent to the existing 115 kV Grand Avenue Switching Station site in New Haven, Connecticut. The new design used GIS equipment, consisting of twelve circuit breakers in a four-bay, breaker-and-a-half configuration, expandable to five bays. The station equipment has a 63 kA fault duty rating. The station was constructed and is operated to meet the requirements associated with the Northeast Power Coordinating Council (NPCC) Bulk Power System (BPS) classification. The project also included re-termination of the seven existing transmission circuits from the existing Grand Avenue Switching Station to the new GIS facilities. The project in service date was May 2012.
- Pootatuck 115/13.8 kV Substation: This \$20M project consisted of constructing the 115 kV / 13.8 kV Pootatuck Substation located in Shelton, Connecticut consisting of two 115 kV line terminal structures, one 115 kV 50 kA gas insulated circuit breaker, four vertical-break disconnect switches and 115 kV bus work, interconnecting two 118/14.9 kV 30/40/50 MVA power transformers with load tap changers (LTC's). The project also included sectionalizing the existing overhead 9.0 mile, 115 kV line by looping it into the Pootatuck Substation to result in a Pootatuck-Trap Falls line (1241 line) approximately 0.84 miles in length and a Pootatuck-Ansonia-Stevenson line (1560 line) approximately 8.2 miles long. The project in service date was May 2015.

The above referenced projects were completed on time and on budget.

5. STANDARDIZED PRACTICES

Avangrid Networks adheres to standardized construction, operating and maintenance practices that meet or exceed regulatory requirements. The following sample of current Avangrid Networks business standards and practices documents related to project implementation and operations and maintenance are attached to this Application:

- Iberdrola USA Electric Project Management Processes Manual
- UIL Project Management Guide
- Iberdrola USA Networks Maintenance Guide for Electrical Equipment
- UI Maintenance Plan
- Avangrid Networks Safety Manual
- UIL Safety Manual

Safety Assurance and Risk Management Plan:

Avangrid Networks is guided by its Occupational Risk Prevention Policy and has established a Health and Safety framework system based on Occupational Health and Safety Assessment Series OHSAS 18001. The purpose of the Occupational Risk Prevention Policy is to achieve a safe and healthy work environment by following these main principles of conduct:

1. Respect the basic pillars of prevention:
 - a. Quality, productivity, and the profitability of its activities are as important as employee health and safety.
 - b. The safety of employees must always prevail. All accidents must be avoided, and the necessary resources must be allocated for such purpose.
 - c. Ongoing improvement
2. Guarantee that all decisions of the Group comply with all legal, labor, and technological requirements related to occupational risk prevention.

3. Develop and implement an occupational risk management system in order to ensure full integration of occupational safety and health standards within the Group's risk prevention management systems.
4. Require that the safety rules established by the Group for contractors be observed and cause contractors to participate in the Avangrid Networks' preventive culture.
5. Encourage the participation of all employees in the promotion of safety and health, cooperating with the Group to raise safety standards.
6. Promote the culture of prevention through:
 - a. Ongoing training of employees, in order to involve every worker and raise awareness of the impact of their work on the safety of persons, processes, and facilities.
 - b. The encouragement of behavior that respects the safety and health of employees.
7. Obtain and maintain certification of the occupational risk prevention management system in line with the strictest international standards in the field of prevention, from the standpoint of ongoing improvement and technological innovation in the overall quality of the production system.
8. Establish close links of cooperation with the various competent government agencies in occupational risk and health matters in order to become a positive benchmark in the field in which the Group undertakes its activities.

The Avangrid Networks Health and Safety management system has twelve sections that guide its risk prevention strategy. The twelve areas are:

1. Leadership and Responsibility
 - a. Describes the responsibilities to be assumed by the senior management and the organization's chain of command in respect to health and safety.
2. Health and Safety Organization
 - a. Describes the requirements and established activity with which the organization must comply in respect to health and safety.
3. Risk Management and Control
 - a. Responsible risk management is one of the two key pillars of Avangrid Network's policy. This standard describes the mechanisms and systems to identify, quantify, manage, tackle and reduce occupational risk associated with the Avangrid Networks' activities.
4. Objectives and Planning
 - a. Describes the requirements for the description and monitoring of objectives and health and safety activities at the organizations.

- b. Details the annual health and safety activities program to control risk, the timeframe, and the people responsible to conduct those activities, including:
 - i. Organization and management of programs
 - ii. Training and information
 - iii. Work facilities and resources
 - iv. Monitoring and control
 - v. Coordination of business activities
 - vi. Social participation
 - vii. Emergency measures
5. Competency, training and awareness
 - a. All employees have a responsibility to work safely. To this end a description is given of the aspects to be included in Avangrid Networks' competency and training procedures to achieve these objectives.
6. Communication and social dialogue
 - a. Describes the communication mechanisms to be implemented with:
 - i. workers and their representatives
 - ii. other workers (including temporary or contracted staff), visitors or any other person at the workplace.
7. Operational Control
 - a. Includes requirements with respect to activities associated with identified hazards and controls needed to manage risk:
 - i. Work permits
 - ii. Workplace inspections
 - iii. Work equipment
 - iv. Personal protective equipment
8. Contract Management
 - a. Describes the requirements that must be included in contractor management procedures in order to exercise effective health and safety control in the work of contractors.
 - b. All medium and high risk activities are required to complete a project health and safety plan that includes a risk assessment of proposed activities. The project team then monitors the contractors' performance against the project plan.
9. Occupational Health
 - a. Details minimum requirements for occupational health levels.
10. Learning from events
 - a. Requirements for recording, notification and investigation of accidents and incidents, and for lessons learned dissemination.
11. Emergency Management
 - a. Emergency situations may have a significantly negative impact on employees, contractors and the business itself if not properly responded to.

Resources must be made available for effective anticipation, assessment, response and communication during emergency or mitigation situations so that disasters can be prevented. A description is given of the requirements for emergency preparation and the characteristics to be included in the response plan.

12. Performance Evaluation

- a. Requirements for measuring the effectiveness of the controls of the organization, among others, target monitoring, indicators, internal audits and monitoring nonconformities and corrective actions.

6. FINANCIAL CAPABILITY AND STATEMENTS

Avangrid Networks consolidated financial statements as of December 31, 2015 - 2017 inclusive are attached to this Application.

In addition, AVANGRID's annual reports on Form 10-K and quarterly reports on Form 10-Q are filed with the Securities and Exchange Commission (SEC) and can be found on AVANGRID's Investor Relations website at:

<http://www.avangrid.com/wps/portal/avangrid/Investors/investors/secfilings>

AVANGRID's credit ratings are as follows:

Table 4. Credit ratings – AVANGRID

AVANGRID's Credit Ratings	2018	2017	2016
S&P Issuer Credit Rating	BBB+	BBB+	BBB+
Moody's Long Term Issuer Rating	Baa1	Baa1	Baa1

The credit ratings of Avangrid Networks operating subsidiaries are shown below:

Table 5. Credit ratings – Avangrid Networks operating subsidiaries

	Face Vale of Long-term Debt Outstanding at 12/31/17 (\$ thousands)	Credit Ratings	
		S&P Issuer Credit Rating	Moody's Long Term Issuer Rating
New York State Electric and Gas Corporation	1,050,000	A-	A3
Rochester Gas & Electric Corporation	962,150	A-	A3
Central Maine Power Company	1,040,000	A-	A2
The United Illuminating Company	733,500	A-	Baa1
Connecticut Natural Gas Corporation	110,000	A-	A3
The Southerm Connecticut Gas Company	214,000	A-	A3
The Berkshire Gas Company	38,817	A-	Baa1

The largest transmission project in Avangrid Network's history was the MPRP referenced in Section 4 above which was constructed by CMP during the years 2010 through 2015. During the course of construction, CMP raised \$750 million in first mortgage bond debt to fund both MPRP and CMP's distribution operations.

Table 6. Debt issuance for MPRP

Title of Issue	CUSIP	Issue (\$M)	Coupon	Issue Date	Maturity Date
Series B FMB	1541E*3	150	4.20%	7/15/2011	7/15/2021
Series C FMB	154051E@1	100	5.68%	1/4/2012	1/4/2042
Series D FMB	154051#9	125	3.07%	6/16/2012	6/15/2022
Series E FMB	154051F*2	225	4.45%	1/15/2013	1/15/2043
Series F FMB	154051F@0	65	3.15%	1/15/2015	1/15/2025
Series G FMB	154051F#8	20	3.37%	1/15/2015	1/15/2030
Series H FMB	15451G*1	65	4.07%	1/15/2015	1/15/2045

7. COMMITMENT TO EXECUTE CONSOLIDATED TRANSMISSION OWNERS AGREEMENT

Avangrid Networks commits to execute the Consolidated Transmission Owners Agreement as required by the Operating Agreement, Schedule 6, Section 1.5.8(a)(1)(vii).

8. FACILITY FAILURE REMEDIATION ABILITY

The Avangrid Networks companies rely on extensive internal subject matter expertise for the implementation of superior project management policies and best practices to maintain and operate its transmission assets. Avangrid Networks would acquire any of the capabilities or competencies required to perform the specific operations and maintenance tasks evidenced by the existing assets the operating companies currently operate and maintain. Each operating company has detailed business implementation plans and expertise, which are the basis for performing the specific operations and maintenance tasks with due diligence and high safety standards.

Avangrid Networks is experienced and prepared to address system emergencies and facility damage. Avangrid Networks' companies have operated electric distribution, transmission, and substation facilities for over 150 years and have procedures in place to address system emergencies around the clock by its qualified employees and contractors. The Avangrid Networks companies possess an extensive fleet of vehicles, complemented by a large inventory of equipment and material fully available for emergency response. Numerous contractors and consultants, on top of its own workforce, are under contract to allow prompt emergency response. Avangrid Networks also possesses a centralized global procurement team that has a solid and extensive purchase record, enabling rapid response from original equipment manufacturers and maintenance contractors when needed, as a complement for the available crews and spare materials. This combined internal and external workforce provides agility and flexibility during emergency and system outage response.

Avangrid Networks currently owns, operates, and maintains a variety of electric transmission line facilities totaling over 8,000 circuit miles as well as over 200 substations, as detailed in Table 3.

9. RIGHT OF WAY ACQUISITION EXPERIENCE

Avangrid Networks is experienced in the acquisition of rights, title and interest for integrated project development involving a variety of engineered electrical transmission solutions including AC lines up to 500 kV and HVDC.

The Avangrid Networks real estate services organization consists of over 40 employees and contracted staff with the ability to add demand-driven capacity as required. The real estate team has over 100 years of combined experience in real estate and right-of-way acquisition strategy and asset management.

Currently, the real estate team manages approximately 47,000 fee simple properties and 1.7 million easements in Connecticut, Maine and New York via processes and procedures that govern the acquisition, disposition and protection of rights, title and interest pertaining to operating and non-operating real estate assets. This experience provides important perspective on the requirements for managing the assets post-acquisition.

The real estate team is well-positioned to realign and reallocate resources to provide a comprehensive real estate solution during each phase of a transmission project. Professional capacity includes, but is not limited to: Project Managers, Land Agents (licensed if State Law requires), Professional Land Surveyors, GIS Professionals, Closing Specialist, Leasing Specialist, and Title Professionals.

The real estate team also has an acute awareness for aligning community outreach and landowner relations to provide a comprehensive real estate solution for a variety of projects in a variety of geographic regions.

The real estate team has a comprehensive understanding and takes a thoughtful approach to regulatory and stakeholder engagement including with, but not limited to, Federal, State and local governments, agencies and authorities, during electrical integrated project development.