

5.500 INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES

5.501 Applicability

This Rule applies to all proposed interconnections of Generation Resources within the State of Vermont ~~which that~~ are not (i) lawfully subject to ISO-NE interconnection rules or successor rules approved by FERC, ~~or (ii) subject to the Commission's net metering rule (Rule 5.100), for which the interconnection provisions of those rules will govern.~~ This Rule does not apply to facilities within the State of Vermont that were ~~interconnected or had obtained all necessary approvals for interconnection with electric power transmission or distribution systems prior to 60 business days after the effective date of this Rule.~~ This Rule applies to all Applications filed on or after the effective date of this Rule.

5.502 Definitions

- (1) Affected System – any electric system that is either directly or indirectly connected to the Interconnecting Utility's electric system that could be adversely affected by the interconnection and parallel operation of the Interconnection Requester's Generation Resource.
- (2) Application – ~~a request for interconnection initiated by the completed Standard Application Form provided by the Commission for the interconnection of Generation Resources, the \$300 Application fee, documentation of site control, and information regarding certification or Underwriters Laboratory listing of the Interconnection Requester's Generation Resource. The Commission may revise the Standard Application Form from time to time, as necessary.~~ a request for interconnection initiated by either (1) the completed Registration Form or Application Form under Rule 5.100 or (2) the completed Standard Application Form provided by the Commission for the interconnection of Generation Resources, the Application Fee, documentation of site control, and information regarding certification or Underwriters Laboratory listing of the Interconnection Requester's Generation Resource.
- (3) Application Fee – the Application Fee paid to the interconnecting utility shall be \$300 or the amount specified in an approved utility tariff. The Application Fee does not apply to net-metered systems eligible to use a registration form or application form for a certificate of public good application under Commission Rule 5.105 or 5.106 or a small renewable generator that is authorized to use such forms under 30 V.S.A. § 8007(a).
- (4) Automatic Disconnect Device – an electronic or mechanical switch used to isolate a circuit or piece of equipment from a source of power without the need for human intervention.
- (5) Commission – the Vermont Public Utility Commission.

- (6) Disconnect (verb) – To isolate a circuit or equipment from a source of power. If isolation is accomplished with a solid-state device, "disconnect" shall mean to cease the transfer of power.
- (7) Disconnection – the state of a circuit or equipment being disconnected from a source of power.
- (8) Distribution Level Study – a System Impact Study conducted at the distribution level.
- (9) Emergency – a situation in which continued interconnection of a Generation Resource is imminently likely to result in significant disruption of service or endanger life or property.
- (10) Facilities Study – a study to determine which Interconnection Facilities or System Upgrades are necessary for interconnection of the Generation Resource.
- (11) Facilities Study Report – contains the results of the Facilities Study and is transmitted to the Interconnection Requester in accordance with Section 5.507(G)(3) 5.511.
- (12) Fast Track – the process for establishing an interconnection for certain qualifying Generation Resources in accordance with Section 5.5067 of this Rule.
- (13) Fast Track Screening Criteria – the screening criteria for Generation Resources set forth in Section 5.505(B) 5.507 of this Rule.
- (14) Feasibility Study – a study consisting of initial engineering analyses regarding the feasibility of interconnecting the Generation Resource, if the Generation Resource is not eligible for Fast Track.
- (15) Feasibility Study Report – contains the results of the Feasibility Study, and other information pursuant to Sections 5.507(E)(6)(a) through (c) 5.509(A-D).
- (16) FERC – the Federal Energy Regulatory Commission.
- (17) Flicker – voltage fluctuations caused by rapid changes in Generation Resource output.
- (18) Frequency Ride Through – the ability of a Generation Resource to stay connected to and synchronized with the system or equipment of the Interconnecting Utility and any Affected Systems during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the Interconnecting Utility's service territory on a comparable basis.

- (19) Generation Capacity – the maximum AC electric output a Generation Resource can produce.
- (20) Generation Resource – a facility that produces electric energy from other energy sources. This includes electric energy storage capable of inserting electric energy onto the grid.
- (21) Good Utility Practice – Any of the practices, methods, and acts engaged in or approved by a significant portion of the electric industry operating a comparable distribution system during the relevant time period, or any of the practices, methods, and acts that, 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.
- (22) IEEE – Institute of Electrical and Electronics Engineers, Inc.
- (23) Interconnecting Utility – Electric utility with which the Interconnection Requester proposes to interconnect a Generation Resource.
- (24) Interconnection Agreement – an agreement between an Interconnecting Utility and Interconnection Requester regarding the interconnection and parallel operation of a Generation Resource. The Interconnection Agreement is accompanied by or includes Technical Requirements and Operator Protocols.
- (25) Interconnection Facilities – all facilities and equipment between the Generation Resource and the Point of Interconnection, including any modification, additions, or upgrades that are necessary to physically and electrically interconnect the Generation Resource to the Interconnecting Utility's distribution or transmission system. Interconnection Facilities are sole-use facilities and shall not include System Upgrades.
- (26) Interconnection Queue – the list of Applications for the interconnection of Generation Resources, in order based upon the date-and-time-stamp of complete Applications, maintained by each Interconnection Utility.
- (27) Interconnection Requester – person or entity who proposes to interconnect a Generation Resource with an Interconnecting Utility.
- (28) ISO-NE – ISO New England, Inc.
- (29) Material Modification – those modifications to the interconnection request, including modifications to any of the technical data provided by the Interconnection Requester, that require additional analysis of the Interconnection Request, could substantially change the interconnection design, or have a material impact on the cost or timing of

any interconnection studies or upgrades associated with an interconnection request with a later queue position in the Interconnection Queue.

- (30) Operator Protocols - an agreement between the Interconnection Requester and the Interconnecting Utility pertaining to the operation and maintenance of the Generation Resource.
- (31) Point of Interconnection – the point on the Interconnecting Utility’s existing system to which the Interconnection Requester proposes to interconnect.

PUC – Public Utility Commission

- (32) Pre-Application Fee – the Pre-Application Fee shall be \$300 or the amount specified in an approved utility tariff.

- (33) Pre-Application Report – information about the application process and the point of proposed interconnection to the utility system.

- (34) Pre-Application Request – a request from the Interconnection Requester for a Pre-Application Report pursuant to Section 5.504.

- (35) Radial Feeder – a distribution line that branches out from a substation and is normally not connected to another substation or another circuit sharing a common supply of electric power.

- (36) Scoping Meeting – ~~an optional~~ meeting between the Interconnecting Utility and the Interconnection Requester to discuss the results of the review of the Fast Track Screening Criteria, and how to proceed with the interconnection request.

- (37) Smart Inverter – a Generation Resource’s inverter that performs functions that, when activated, can autonomously contribute to grid support during excursions from normal operating voltage and frequency system conditions by providing: dynamic reactive/real power support, Voltage Ride Through, Frequency Ride Through, ramp rate controls, communication systems with ability to accept external commands, and other functions.

- (38) Standard Application Form – the form Application Form included as Attachment 1 to this Rule, adopted by the Commission, as may be amended by the Commission from time to time.

- (39) Study Agreement – an agreement between the Interconnecting Utility and Interconnection Requester regarding the terms and conditions of the conduct of a study proposed by the Interconnecting Utility in order to proceed with the interconnection review process.

- (40) Supplemental Review – a study conducted following Fast Track review, to determine whether a Generation Resource may be interconnected without requiring

a System Impact Study.

- (41) System Impact Study – any study or studies performed by an Interconnection Utility or a designated third party to ensure the safety, reliability, and stability of the electric power system with respect to the interconnection of Generation Resources.
- (42) System Impact Study Report - contains the results of the System Impact Study, and other information pursuant to Section ~~5.507(F)(4)(a) through (e)~~ **5.510.**
- (43) System Upgrades – the additions, modifications, and upgrades to the distribution system and/or transmission system at or beyond the Point of Interconnection to facilitate interconnection of the Generation Resource. System Upgrades do not include Interconnection Facilities.
- (44) Technical Requirements - an agreement between the Interconnection Requester and the Interconnecting Utility designed to provide protection to the public and to the personnel and equipment of the Interconnection Requester and Interconnecting Utility from the physical and financial risks associated with the interconnection and parallel operation of the proposed Generation Resource. The interconnection Technical Requirements accomplish this task through including, but not limited to, ensuring the installation of proper protective devices and metering equipment, and establishing performance criteria to minimize the probability that the Generation Resource will reduce the quality of service on the Interconnecting Utility's system.
- (45) This Rule – **PUC Commission** Rule 5.500: Interconnection Procedures for Proposed Electric Generation Resources.
- (46) Transmission Level Study – a System Impact Study conducted at the transmission level.
- (47) **Voltage Ride Through – the ability of a Generation Resource to stay connected to and synchronized with the system or equipment of the Interconnecting Utility and any Affected Systems during system disturbances within a range of under-voltage and over-voltage conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the Interconnecting Utility's service territory on a comparable basis.**

5.503 General Procedures

(A) Applications for proposed Generation Resources that are determined to be complete in accordance with Section 5.504, and which satisfy all of the Fast Track Screening Criteria of Section 5.505(B), shall follow the Fast Track process specified in Section 5.506. Complete Applications for proposed Generation Resources that do not meet all of the Fast Track Screening Criteria shall be evaluated through the appropriate Feasibility, System Impact, and/or Facilities Studies as set forth in Section 5.507 of this Rule. The Standard Application Form is included as Attachment 1 to this

Rule. All proposed Generation Resources must be interconnected by use of a certified equipment package under Section 5.514 or designed to be in compliance with the latest versions of:

- (1) the IEEE 1547 Series of Standards for Interconnecting Distributed Resources with electrical power systems;
- (2) UL 1741SA Inverters, Converters, and Controllers for use in Independent Power Systems;
- (3) IEEE 1453 Flicker Measurements;
- (4) National Electrical Safety Code;
- (5) National Electrical Code; and
- (6) ISO-NE interconnection requirements that are applicable to a Generation Resource.

(B) Studies shall model all such Generation Resources at their nameplate output or at some other reasonable and expected capacity determined by the Interconnecting Utility. All studies conducted pursuant to this Rule shall consider all Generation Resources that:

- (1) Are directly interconnected to the Interconnecting Utility's electric transmission or distribution system;
- (2) Are interconnected to Affected Systems and may have an impact on the Interconnection Requester's Application; and
- (3) Have a pending Application with an earlier position in the Interconnection Queue to interconnect to the electric transmission and/or distribution systems.

(C) ~~(B)~~ After providing an opportunity for comment to the Department of Public Service, electric utilities, and other affected parties, the Commission ~~will~~ may provide model documents, which may be used by the Interconnecting Utility and Interconnection Requester, for the following: Pre-Application Report Request, any Study Agreement, Interconnection Agreement, Technical Requirements, and Operator Protocols. However, the Interconnecting Utility and Interconnection Requester may also voluntarily enter into different arrangements. In the event that these parties are unable to agree upon the terms of an agreement to be reached under this Rule, either party may petition the Commission under Section ~~5.508~~ 5.511(D) of this Rule for resolution of the dispute.

(D) ~~(C)~~ The time deadlines specified in this Rule are maximum times. To avoid unnecessary delay of the Generation Resource project, the Interconnecting Utility is encouraged to complete each task in less time than allotted, to the extent feasible.

(E) ~~(D)~~ A flow chart for the interconnection procedures specified in this Rule is included in Appendix A. The flow chart is provided for informational purposes only, and is not part of this Rule.

(F) For Supplemental Reviews and Feasibility, System Impact, or Facilities studies for which this Rule requires the Interconnection Requester to bear the cost, the Interconnecting Utility may propose to group projects for more than one Interconnection Requester in order to minimize costs through economies of scale.

- (G) For Supplemental Reviews and Feasibility, System Impact, or Facilities studies, the Interconnecting Utility may contract with consultants, including contractors acting on behalf of the Interconnecting Utility, to perform the activities required under the study agreements. The third-party entities contracted with shall be licensed appropriately for each area of study.

5.504 Application Submittal and Determination of Complete Application

(A)Pre-Application. To assist an Interconnection Requester in the interconnection process, the Interconnecting Utility shall designate an employee or office from which information on the application process can be obtained through an informal request by the Interconnection Requester presenting a proposed project. When responding to the first such informal request, the Interconnecting Utility shall inform the Interconnection Requester of, and how to access, this Rule. System information provided to Interconnection Requesters should include relevant existing system studies, existing interconnection studies, and other existing materials useful to an understanding of an inter-connection at a particular point on the Interconnecting Utility's electric system. The Interconnecting Utility shall comply with reasonable requests for such information. Prior to the Interconnection Requester's filing an Application, the Interconnecting Utility shall inform the Interconnection Requester of its view on whether the interconnection of the proposed Generation Resource is governed by this Rule, Rule 5.100, or the inter-connection requirements of the ISO-NE or successor rules approved by FERC, and the basis for that view.

(B)Application. The Interconnection Requester shall complete and submit to the Interconnecting Utility the Standard Application Form, provided by the Commission, for single-phase or three-phase equipment of any size. In addition to the Standard Application Form, the Interconnection Requester shall include the following items and information in an Application:

- (1)The \$300 Application fee. The Application fee shall be non-refundable, unless the Application is withdrawn within five business days of submittal.
- (2)Documentation of site control, which may be demonstrated through:
 - (a)Ownership of, a leasehold interest in, or a right to develop a site for the purpose of constructing a Generation Resource;
 - (b) An option to purchase or acquire a leasehold site for such purpose; or
 - (c)An exclusivity or other business relationship between the Generation Resource and the entity having the right to sell, lease or grant the Generation Resource the right to possess or occupy a site for such purpose.
- (3)Information regarding certification or Underwriters Laboratory listing of the Interconnection Requester's Generation Resource.

(C)The Interconnecting Utility shall date and time-stamp Applications upon receipt. The original date and time-stamp applied to the Application at the time of its original submission for interconnection shall be accepted as the qualifying date and time-stamp for the purposes of any timetable in this Rule and for inclusion in the Interconnecting Utility's Interconnection Queue.

(D)Initial notifications by Interconnecting Utility

- (1)The Interconnecting Utility shall provide the Interconnection Requester with a notification of receipt within 5 business days of receiving the Interconnection Requester's Application.

(2) The Interconnecting Utility shall notify the Interconnection Requester within 10 business days of the receipt of the Application as to whether the Application is complete or incomplete.

(a) If the Application is complete, the Interconnecting Utility shall notify the Affected Systems in accordance with the same interconnection notification protocols that would apply if the Application were subject to FERC jurisdiction, and shall place the Application in the Interconnecting Utility's Interconnection Queue.

(b) If the Application is incomplete, the Interconnecting Utility shall provide, along with the Notice that the Application is incomplete, a written list detailing all information that must be provided to complete the Application. The Interconnection Requester shall have 10 business days after receipt of the Notice to submit the listed information or to request an extension of time to provide such information. If the Interconnection Requester does not provide the listed information or a request for an extension of time within the 10 business day deadline, the Application shall be deemed withdrawn. An Application will be complete upon submission of the listed information to the Interconnecting Utility.

(E) Each Interconnecting Utility shall maintain an Interconnection Queue. The Interconnecting Utility shall assign each complete Application a position in the Interconnection Queue based upon the date and time stamp of the Interconnection Requester's Application. The date and time stamp of the Application will be used to determine the cost responsibility for any System Upgrades necessary to accommodate the interconnection. At the Interconnecting Utility's option, interconnection requests may be studied serially or in clusters for the purpose of the System Impact Study.

(F) Modification of Application. Any material modification to machine data or equipment configuration or to the Point of Interconnection not agreed to in writing by the Interconnecting Utility and the Interconnection Requester may be deemed by the Interconnecting Utility as a withdrawal of the Application and may require submission of a new Application, unless proper notification of each party by the other and a reasonable time to cure the problems created by the changes are undertaken. This provision shall apply during the process described in Sections 5.505 through 5.508 of this Rule.

5.504 Optional Pre-Application Report

(A) Upon receipt of a completed Pre-Application Report Request and the Pre-Application Fee, the Interconnecting Utility shall provide pre-application data described in this section within 14 days of receipt. The Pre-Application Report Request shall include a proposed Point of Interconnection, generation technology, and fuel source. The proposed Point of Interconnection shall be defined by latitude and longitude, site map, street address, utility equipment number (e.g., pole number), meter number, account number, or some combination of the above sufficient to clearly identify the location of the Point of Interconnection.

(B) The Pre-Application Report will include the following information if available:

- (1) Total capacity (MW) of substation or circuit likely to serve proposed site;
 - (2) Allocated capacity (MW) of substation or circuit likely to serve proposed site;
 - (3) Queued capacity (MW) of substation or circuit likely to serve proposed site;
 - (4) Available capacity (MW) of substation or bank and circuit most likely to serve proposed site;
 - (5) Nominal distribution voltage of the circuit most likely to serve proposed site;
 - (6) Approximate circuit distance between the proposed site and the substation;
 - (7) Relevant line section(s) peak load estimate, and minimum load data, when available;
 - (8) Number of protective devices and number of voltage regulating devices between the proposed site and the substation;
 - (9) Whether or not three-phase power is available at the site;
 - (10) Limiting conductor rating from proposed Point of Interconnection to the substation; and
 - (11) Based on proposed Point of Interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.
- (C) The Pre-Application Report need only include pre-existing data. A Pre-Application Report request does not obligate the utility to conduct a study or other analysis of the proposed project in the event that data are not available. If the utility cannot complete all or some of a Pre-Application Report due to lack of available data, the utility will provide the applicant with a Pre-Application Report that includes the information that is available.
- (D) In requesting a Pre-Application Report, the applicant understands that:
- (1) The existence of “Available Capacity” in no way implies that an interconnection up to this level may be completed without impacts because there are many variables studied as part of the interconnection review process;
 - (2) The utility system is dynamic and subject to change;
 - (3) Data provided in the Pre-Application Report may be outdated and not useful at the time of submission of the complete Interconnection Request; and
 - (4) Pre-Application Report Requests are not placed in the Interconnection Queue.
- (E) Notwithstanding any of the provisions of this Section, the utility shall, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

5.505 Fast Track Screening Process

(A) Within 15 business days after the Interconnecting Utility notifies the Interconnection Requester it has received a complete Application, the Interconnecting Utility shall perform a review of the Application under the Fast Track Screening Criteria set forth below, shall notify the Interconnection Requester of the results, and shall include with the notification copies of the analysis and data underlying the Interconnecting Utility’s determinations under the Fast Track Screening Criteria.

(B) Fast Track Screening Criteria

(1) The Interconnection Requester's proposed Generation Resource meets the applicable codes and standards of Section 5.510 or is a certified equipment package under Section 5.511.

(2) The proposed interconnection point is not at transmission voltage (i.e., not over 23kV line to line or 13.28 kV line to neutral).

(3) For interconnection to a Radial Feeder, the aggregated generation, including the proposed Generation Resource, on the circuit will not exceed 15% of the line section annual peak load as most recently measured at the substation. A line section is that portion of a distribution system connected to a customer bounded by Automatic Disconnect Devices or the end of the distribution line.

(4) The aggregated generation, including the proposed Generation Resource, on a distribution circuit will not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed interconnection point.

(5) The aggregated generation, including the proposed Generation Resource, on a distribution circuit will not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or customer equipment on the system to exceed 85% of the short-circuit interrupting capability; nor is the Generation Resource proposed for a circuit that already exceeds 85% of the short-circuit interrupting capability.

(6) For interconnection of a proposed single-phase or effectively grounded three-phase Generation Resource where the primary distribution system is three-phase, four-wire, the Generation Resource will be connected line-to-neutral. For interconnection of a proposed single-phase or three-phase Generation Resource where the primary distribution system is three-phase, three-wire, the Generation Resource will be connected line-to-line.

(7) Voltage drop due to starting the proposed generator is within acceptable limits, meaning that inrush current, due to starting the proposed Generation Resource up to once per hour, is not greater than 3% of the available fault current. Voltage drop due to starting the proposed Generation Resource more than once per hour meets a tighter inrush current tolerance, to be determined by the Interconnecting Utility.

(8) For any single Generation Resource, the available utility short circuit current at the Point of Interconnection divided by the rated output current of the Generation Resource is no less than:

(a) 50 for Generation Resources of less than 100 kW;

(b) 40 for Generation Resources from 100 kW to less than 500 kW; and (c) 20 for Generation Resources equal to or greater than 500 kW.

(9) Aggregate generation, including the Generation Resource, on a circuit will not exceed 2 MVA in an area where there are known or posted transient stability limitations to generating units located in the general electrical vicinity (e.g., three or four busses from the point of interconnection).

(10) No System Upgrades, in excess of limited preparations that do not necessitate a Facilities Study, are required to facilitate the interconnection of the Generation Resource.

(11) For interconnection of the proposed Generation Resource to the load side of spot network protectors, the proposed Generation Resource utilizes inverter-based equipment and

aggregate generation, including proposed Generation Resource, will not exceed the smaller of 5% of a spot network's maximum load or 50 kW. Synchronous generators cannot be connected to a secondary network.

(12) If the Generation Resource is to be connected on a shared, single-phase secondary, aggregate generation capacity on the shared secondary, including the proposed generation, will not exceed 20 kVA.

(13) If the Generation Resource is single-phase and is to be interconnected on a center-tap neutral of a 240-volt service, its addition will not create an imbalance between the two sides of the 240-volt service of more than 20% of the service transformer nameplate.

5.505 Application Submittal and Determination of Complete Application

(A) Application. The Interconnection Requester shall complete the appropriate application form as follows:

(1) For net-metered systems eligible to use a registration form or application form for a certificate of public good application under Commission Rule 5.105 or 5.106 or a small renewable generator that is authorized under 30 V.S.A. § 8007(a) to use the same registration or application form, the filing of such registration or application form shall constitute an interconnection application under This Rule.

(2) All other systems shall use the Standard Application Form, as provided by the Commission. The Interconnecting Utility may accept such Applications either in paper or electronically. In addition to the Standard Application Form, the Interconnection Requester shall include the following items and information in an Application:

a. The Application Fee, which is non-refundable, unless the Application is withdrawn within 7 days of submittal. The Interconnecting Utility may require electronic payment of the Application Fee.

b. Documentation of site control, which may be demonstrated through:

i. fee simple title to such real property;

ii. a valid written leasehold interest for such real property for at least the duration of the time it will take to develop the Generation Resource. A lease must unconditionally bind the lessor, owner, or the property, subject to payment of a named rent and compliance by the Interconnection Requester/lessee with standard commercial terms;

iii. a valid written option with all terms stipulated unconditionally and exercisable by the Interconnection Requester or its assignee, to purchase or lease such real property. An option must

unconditionally confer on the Interconnection Requester the right to purchase or lease the property within an agreed-upon period at a named price. It must be binding on the owner of the property and provide that the owner cannot unilaterally withdraw, revoke, or rescind the obligation to sell or lease the property to the Interconnection Requester; or

iv. a duly executed contract for the purchase or lease of such real property. A contract must unconditionally confer on the Interconnection Requester the right to purchase or lease the property within an agreed-upon period at a named price. It must be binding on the owner of the property and provide that the owner cannot unilaterally withdraw, revoke, or rescind the obligation to sell or lease the property to the Interconnection Requester.

c. Information regarding certification or Underwriters Laboratory listing of the Interconnection Requester's Generation Resource.

(B) Interconnection Queue. Each interconnecting utility must maintain an Interconnection Queue of all proposed Generation Resources.

(C) Interconnection Queue Position. The Interconnecting Utility shall assign each Generation Resource a position in the Interconnection Queue based upon the date-and-time-stamp of the Interconnection Requester's complete Application.

(D) Costs. The date-and-time-stamp of the Application will be used to determine the cost responsibility for any System Upgrades necessary to accommodate the interconnection.

(E) Certain Interconnection Queue Information Publicly Available. The Interconnecting Utility shall make its Interconnection Queue available upon request, redacted to include only the Generation Resource type, location by town, interconnection point, fuel type, and Generation Capacity of proposed Generation Resources.

(F) Serial Review of Multiple Applications. If the number and timing of interconnection requests for a specific area is such that interconnection requests directly impact each other, requiring the utility to study the generation resources serially in order to determine system impact, the Interconnecting Utility will notify the Interconnection Requester that its review of the generation resource will be on hold until the Interconnecting Utility has completed its study or review of generation resources ahead of the Interconnecting Requester in the Interconnection Queue.

(G) Completeness Review. Upon receipt, the Interconnecting Utility must review an Application for completeness. The Interconnecting Utility should communicate the results of this review to the Interconnection Requestor within the timeframes

specified under Commission Rule 5.506, below.

5.506 Applications Eligible for Fast Track

(A) Applications for proposed Generation Resources shall be eligible for Fast Track if the proposed Generation Resource satisfies all of the Fast Track Screening Criteria. At the time the Interconnecting Utility notifies the Interconnection Requester of the results of the review of the Fast Track Screening Criteria, if the Application is eligible for Fast Track, the Interconnecting Utility shall present the Interconnection Requester with the option of Fast Tracking the Application. If limited and low cost preparations are required to Fast Track the proposed Generation Resource, a good-faith cost estimate shall accompany the notification that the requested interconnection can be Fast Tracked. If the Interconnection Requester indicates in response to this notification that it does not want to proceed further, the Application will be considered withdrawn.

(B) If mutually agreed upon, a Scoping Meeting to discuss available options may be scheduled and held within 10 business days of the Interconnecting Utility notifying the Interconnection Requester of the results of the review of the Fast Track Screening Criteria.

(C) Applications that qualify for Fast Track shall not require Feasibility, System Impact, or Facilities Studies, and shall proceed directly to the Interconnection Agreement in accordance with Section 5.506(D).

(D) Interconnection Agreement

——— (1) If the proposed Generation Resource is eligible for Fast Track, the Application shall be approved and the Interconnecting Utility shall provide the Interconnection Requester an executable Interconnection Agreement before holding a Scoping Meeting if a Scoping Meeting is to be held, within 5 business days of a decision not to hold a Scoping Meeting, or, if applicable, within 5 business days of confirmation that the Interconnection Requester has agreed to make the necessary limited preparations at the Interconnection Requester's expense, whichever is later.

——— (2) The Commission will provide a model Interconnection Agreement and associated Technical Requirements and Operator Protocols. However, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into different arrangements.

5.506 Review of Applications

(A) Review of Applications Made Pursuant to Commission Rule 5.505(A)(1). Applications for net-metering systems and small renewable generators made pursuant to Commission Rule 5.505(A)(1), above, shall be reviewed within 30 days. If the Interconnecting Utility determines that the Application raises an interconnection issue, then the Interconnecting Utility will review the Application using the procedures specified in Commission Rules 5.507 through 5.112, as necessary. If the Interconnecting Utility determines that the Application does not raise an interconnection issue, the proposed Generation Resource may interconnect without additional study.

(B) Review of Applications Made Pursuant to Commission Rule 5.505(A)(2).

- (1) The Interconnecting Utility shall provide the Interconnection Requester with a notification of receipt within 7 days of receiving the Interconnection Requester's Application.
 - (2) The Interconnecting Utility shall notify the Interconnection Requester within 14 days of the receipt of the Application as to whether the Application is complete or incomplete.
 - a. If the Application is complete, the Interconnecting Utility shall notify the Affected Systems in accordance with the same interconnection notification protocols that would apply if the Application were subject to FERC jurisdiction. In the case of a Generation Resource with a capacity greater than or equal to one megawatt (1 MW), the Interconnecting Utility shall notify all Vermont electric transmission or distribution utilities.
 - b. If the Application is incomplete, the Interconnecting Utility shall provide, along with the notice that the Application is incomplete, a written list detailing all information that must be provided to complete the Application. An Application will be complete upon submission to the Interconnecting Utility of a revised Application containing the listed information. The proposed Generation Resource will be placed in the Interconnecting Utility's Interconnection Queue based on the date-and-time-stamp of the Application that is determined to be complete.
 - (3) Complete Applications reviewed pursuant to this Subsection will be reviewed using the procedures specified under Commission Rules 5.507 through 5.512.
- (C) **Modification of Application.** Any Material Modification to the information provided in the Application, including but not limited to machine data or equipment configuration, the Point of Interconnection, interconnection location, or site control, not agreed to in writing by the Interconnecting Utility and the Interconnection Requester may be deemed by the Interconnecting Utility as a withdrawal of the Application and may require submission of a new Application. This provision applies during the process described in Sections 5.507 through 5.511 of this Rule. The Interconnection Requester must notify the Interconnecting Utility immediately of any change in the information provided in the Application, including but not limited to the loss of site control.

5.507 Applications Not Eligible for Fast Track

- (A) Applications for proposed Generation Resources shall not be eligible for Fast Track if the proposed Generation Resource does not satisfy all of the Fast Track Screening Criteria.
- (B) For those Proposed Generation Resources that are not eligible for Fast Track, the codes and standards listed in Section 5.510 shall be met to the extent that they are applicable to the proposed Generation Resource.

(C) If mutually agreed upon, a Scoping Meeting to discuss available options may be scheduled and held within 10 business days of the Interconnecting Utility notifying the Interconnection Requester of the results of the review of the Fast Track Screening Criteria. The purpose of the Scoping Meeting may be to review existing studies relevant to the Interconnection Requester's interconnection Application, and/or to further discuss whether the Interconnecting Utility should perform a Feasibility Study, or proceed directly to a System Impact Study or to a Facilities Study.

(D) If the Interconnecting Utility and the Interconnection Requester agree to proceed with the interconnection Application and agree that a Feasibility Study should be performed, the procedures of Section 5.507(E) shall apply. If the Interconnecting Utility and the Interconnection Requester agree to proceed with the interconnection Application, but agree not to perform a Feasibility Study and to proceed directly to a System Impact Study or a Facilities Study, the procedures at Sections 5.507(F) or 5.507(G), respectively, shall apply. If mutually agreed upon by the Interconnection Requester and the Interconnecting Utility, the Feasibility, System Impact, and/or Facilities Studies may be combined for the purpose of achieving cost and/or time savings.

(E) Feasibility Study

(1) Within 5 business days after the close of the Scoping Meeting, or after the date of the decision not to hold a Scoping Meeting, the Interconnecting Utility shall provide the Interconnection Requester an executable Feasibility Study Agreement including an outline of the scope of the study and a good faith estimate of the cost to perform the study. In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 15 business days, an executed Feasibility Study Agreement along with a deposit of the lesser of fifty percent of estimated Feasibility Study costs or \$1,000. A model Feasibility Study Agreement will be provided by the Commission; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.

(2) A Feasibility Study shall include the following analyses:

(a) Initial identification of any instances where the short-circuit capability limits of any protective device (circuit breaker, recloser, fuse, etc.) would be exceeded as a result of the interconnection;

(b) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection;

(c) Initial review of grounding requirements and system protection; and

(d) Description and non-binding estimated cost of facilities required to interconnect the facility to an electric distribution power system or directly to a transmission system and to address the identified short-circuit and power flow issues.

(3) A Feasibility Study shall model the impact of the Generation Resource regardless of purpose, in order to avoid the further expense and interruption of operation for reexamination of feasibility and impacts if the Interconnection Requester later changes the purpose for which the Generation Resource is being installed.

(4) A Feasibility Study shall include the feasibility of any interconnection at a proposed project site where there could be multiple potential Points of Interconnection, as requested by the Interconnection Requester.

(5) In performing the Feasibility Study, the Interconnecting Utility shall rely, to the extent

reasonably practicable, on existing studies of recent vintage. The Interconnection Requester shall not be charged for such existing studies; however, the Interconnection Requester shall be responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the Feasibility Study.

—————(6) Feasibility Study Report and Cost Reconciliation

—————(a) Once a Feasibility Study is completed, the Interconnecting Utility shall prepare a Feasibility Study Report, which describes the results of the Feasibility Study, and transmit it to the Interconnection Requester. Barring unusual circumstances outside of the Interconnecting Utility's control, the Interconnecting Utility shall complete a Feasibility Study, and transmit the Feasibility Study Report to the Interconnection Requester, within 30 business days of the Interconnection Requester's agreement to conduct a Feasibility Study.

—————(b) The Feasibility Study Report shall also include cost estimates for the Distribution Level System Impact Study, Transmission Level System Impact Study, and Facilities Study, to the extent that any of these studies are determined by the Feasibility Study to be required.

—————(c) The Feasibility Study Report shall also include a request that the Interconnection Requester, after reviewing the results of the Feasibility Study, notify the Interconnecting Utility regarding whether the Interconnection Requester would like to proceed with the interconnection Application. If the Interconnection Requester decides not to proceed with the Application, or if the Interconnection Requester does not notify the Interconnecting Utility within 15 business days, the Interconnecting Utility may consider the Application withdrawn.

—————(d) Cost reconciliation. Within 15 business days of submittal of the Feasibility Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the Feasibility Study. The Interconnection Requester must pay the full cost of the Feasibility Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof which the Interconnecting Utility does not itself perform [see 5.507(H)]. If the cost of the Feasibility Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the Feasibility Study minus the deposit), without interest, within 25 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the Feasibility Study, the Interconnecting Utility shall refund such excess, without interest, within 15 business days of submittal of the Feasibility Study Report.

—————(7) If a Feasibility Study shows no potential adverse impacts on the electric system, and no additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Interconnection Agreement within 5 that it would like to proceed with the interconnection. A model Interconnection Agreement and associated Technical Requirements and Operator Protocols will be provided by the Commission; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into different arrangements.

—————(8) If a Feasibility Study shows no potential adverse impacts on the electric system, but additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Facilities Study Agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.507(G), within 5 business days after receiving confirmation from the Interconnection Requester that it would like to proceed with the interconnection. The Commission will provide a model Facilities

Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.

——— (9) If a Feasibility Study shows the potential for adverse impacts on either the distribution system or the transmission system, the review process shall proceed to the System Impact Study, and the Interconnecting Utility shall send the Interconnection Requester an executable System Impact Study Agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.507(F), within 5 business days after receiving confirmation from the Interconnection Requester that it would like to proceed with the interconnection. The executable System Impact Study Agreement shall specify whether it and the cost estimate are for a Distribution Level Study, Transmission Level Study, or both. The Commission will provide a model System Impact Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.

(F) System Impact Study

——— (1) In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 15 business days, an executed System Impact Study Agreement along with a deposit equivalent to the estimated cost of the study. A model System Impact Study Agreement will be provided by the Commission; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.

——— (2) A System Impact Study includes two sub-studies: a Transmission Level Study and a Distribution Level Study. One or both of the sub-studies may be performed, depending on the specific circumstances of the Application and the findings of the Scoping Meeting and/or Feasibility Study. If the Scoping Meeting or Feasibility Study identifies potential adverse impacts on the distribution system, a Distribution Level Study shall be performed. If the Scoping Meeting, Feasibility Study, or Distribution Level Study identifies potential adverse impacts on the transmission system, a Transmission Level Study shall be performed.

——— (a) The Distribution Level System Impact Study shall consist of a distribution load-flow study, an analysis of equipment interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and setpoint coordination studies, and grounding reviews, and the impact on system operation, as necessary.

——— (b) The Transmission Level System Impact Study shall consist of a short-circuit analysis, a stability analysis, a power-flow analysis, voltage drop and flicker studies, protection and set-point coordination studies, and grounding reviews, as necessary.

——— (3) The purpose of the System Impact Study shall be to identify and specify the impacts to electric transmission and/or distribution system stability and reliability that would result if the proposed Generation Resource were interconnected without project modifications or system modifications, focusing on the adverse impacts identified in the Scoping Meeting or Feasibility Study, and to identify and study any additional potential impacts. The System Impact Study shall consider all generating facilities that:

——— (a) Are directly interconnected to the Interconnecting Utility's electric transmission or distribution system;

——— (b) Are interconnected to Affected Systems and may have an impact on the Interconnection Requester's Application; and

——— (c) Have a pending Application with an earlier position in the Interconnection

Queue to interconnect to the electric transmission and/or distribution systems.

————— (4) System Impact Study Report and Cost Reconciliation

————— (a) Once a System Impact Study is completed, the Interconnecting Utility shall prepare a System Impact Study Report and transmit it to the Interconnection Requester. Barring unusual circumstances outside of the Interconnecting Utility's control, the System Impact Study determined to be necessary by the Feasibility Study or Scoping Meeting shall be completed and transmitted to the Interconnection Requester within 45 business days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was performed, and 60 days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was not performed.

————— (b) The System Impact Study Report shall state the assumptions upon which the System Impact Study is based, state the results of the analyses, and provide the requirements for, or potential impediments to, providing the requested interconnection service, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and to implement the interconnection. The System Impact Study shall provide a list of facilities that are required as a result of the Interconnection Requester's Application and a non-binding good faith estimate of cost responsibility and a non-binding good faith estimate of time to construct.

————— (c) The System Impact Study Report shall also include a request that the Interconnection Requester, after reviewing the results of the System Impact Study, notify the Interconnecting Utility regarding whether the Interconnection Requester would like to proceed with the interconnection Application. If the Interconnection Requester decides not to proceed with the Application, or if the Interconnection Requester does not notify the Interconnecting Utility within 15 business days, the Interconnecting Utility may consider the Application withdrawn.

————— (d) Cost reconciliation. Within 15 business days of submittal of the System Impact Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the System Impact Study. The Interconnection Requester must pay the full cost of the System Impact Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof which the Interconnecting Utility does not itself perform [see 5.507(H)]. If the cost of the System Impact Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the System Impact Study minus the deposit), without interest, within 25 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the System Impact Study, the Interconnecting Utility shall refund such excess, without interest, within 15 business days of submittal of the System Impact Study Report.

————— (5) If, while conducting the System Impact Study outlined in the executed System Impact Study Agreement, the Interconnecting Utility determines that studies beyond those contained in the executed System Impact Study Agreement are required (for instance, if the Feasibility Study recommended that a Distribution Level Study be conducted, and, during the course of conducting the Distribution Level Study, the Interconnecting Utility determined that a Transmission Level Study is also required), the Interconnecting Utility shall, within 5 business days of making that determination, send the Interconnection Requester a supplemental System Impact Study Agreement, including an outline of the scope of the supplemental study. In order to

remain under consideration for interconnection, the Interconnection Requester must return an executed supplemental System Impact Study Agreement within 15 business days with a deposit equivalent to the estimated cost of the supplemental study. Barring unusual circumstances outside of the Interconnecting Utility's control, a supplemental System Impact Study shall be completed and transmitted to the Interconnection Requester within 45 business days of the receipt of the supplemental System Impact Study Agreement. The report and cost reconciliation shall follow the procedures detailed in Section 5.507(F)(4)(b) through (d), above.

— (6) In instances where a Feasibility Study or a System Impact Study shows potential for adverse impacts on the transmission system, within 5 business days following transmittal of the Feasibility Study Report or System Impact Study report, the Interconnecting Utility shall notify the Affected Systems in accordance with the same interconnection notification protocols that would apply if the Application were subject to FERC jurisdiction.

— (7) Where transmission systems and electric power distribution systems have separate owners, such as is the case with transmission-dependent utilities, whether investor-owned or not, the Interconnection Requesters may apply to the nearest transmission utility providing transmission service to the transmission-dependent utility to request project coordination if that transmission utility is notified in accordance with the same interconnection notification protocols that would apply if the Application were subject to FERC jurisdiction.

— (8) If a System Impact Study shows that no additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Interconnection Agreement within 15 business days after receiving confirmation from the Interconnection Requester that it would like to proceed with the interconnection. A model Interconnection Agreement and associated Technical Requirements and Operator Protocols will be provided by the Commission; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into different arrangements.

— (9) If a System Impact Study shows that additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Facilities Study Agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.507(G), within 5 business days after receiving confirmation from the Interconnection Requester that it would like to proceed with the interconnection. The Commission will provide a model Facilities Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.

(G) Facilities Study

— (1) In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 30 business days, an executed Facilities Study Agreement along with a deposit equivalent to the estimated cost of the study. The Interconnection Requester may also request an extension of time within the 30 business days.

— (2) Facilities Study Preparation. Transmission system and/or distribution system interconnection design for any required Interconnection Facilities and/or System Upgrades shall be performed under a Facilities Study agreement between the Interconnection Requester and the Interconnecting Utility. The Interconnecting Utility may contract with consultants, including contractors acting on behalf of the Interconnecting Utility, to perform the bulk of the activities required under the Facilities Study agreement. In some cases, the Interconnection Requester and the Interconnecting Utility may reach agreement allowing the Interconnection Requester to separately arrange for the design of some of the required Interconnection Facilities and/or

System Upgrades. In such cases, facilities design shall be reviewed, and modified as necessary by the Interconnecting Utility, prior to acceptance under the provisions of the Facilities Study Agreement. If the parties agree to separately arrange for design and construction, the Interconnecting Utility shall make sufficient information available to the Interconnection Requester to permit the Interconnection Requester to obtain an independent design and cost estimate for any necessary facilities. This provision shall not prohibit the Interconnecting Utility and the Interconnection Requester from reaching agreement to protect information one or the other deems confidential, and shall not require the Interconnecting Utility to disclose information it is otherwise obliged not to disclose or affect the Commission's authority to compel or restrict disclosure of information.

———(3)System Upgrades. In cases where System Upgrades are required, the Facilities Study shall be completed and a Facilities Study Report transmitted to the Interconnection Requester within 45 days of the receipt of the Facilities Study Agreement. In cases where no System Upgrades are required, and the required facilities are limited to Interconnection Facilities, the Facilities Study shall be completed and a Facilities Study Report transmitted to the Interconnection Requester within 30 business days. The Facilities Study Report shall include a good-faith estimate of the cost of any recommended System Upgrades or Interconnection Facilities.

———(4)Cost reconciliation. Within 15 business days of submittal of the Facilities Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the Facilities Study. The Interconnection Requester must pay the full cost of the Facilities Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof which the Interconnecting Utility does not itself perform [see 5.507(H)]. If the cost of the Facilities Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the Facilities Study minus the deposit), without interest, within 25 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the Facilities Study, the Interconnecting Utility shall refund such excess, without interest, within 15 business days of submittal of the Facilities Study Report.

———(5)Costs of Facilities and Cost Responsibility. Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Generation Resource, the Interconnection Requester shall bear the entire cost of such facilities. Within 30 days of final collection of all material, labor, contractor, permitting, and other costs incurred by the Interconnecting Utility in construction, testing, and commissioning of the Interconnection Facilities and System Upgrades, the Interconnecting Utility shall provide the Interconnection Requester with an invoice. The Interconnection Requester must pay all such costs that exceed the deposit within 30 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Interconnecting Utility shall return such excess, without interest, within 30 business days of receipt of the invoice or resolution of any dispute.

———(6)Grouping of Facilities. An Interconnecting Utility may propose to group facilities required for more than one Interconnection Requester in order to minimize facilities' costs through economies of scale, but any Interconnection Requester may require the installation of facilities required for its own Generation Resource if it is willing to pay the costs of those facilities.

(H) Notification Prior to Exceeding Cost Estimate. For any study for which these Rules require the Interconnection Requester to bear costs, the Interconnecting Utility shall, prior to exceeding a previously provided cost estimate, promptly notify the Interconnection Requester if study costs are likely to exceed the previously provided estimate and shall provide the Requester with a revised total estimated cost for the study. The Interconnecting Utility shall proceed with completing the study unless and until requested to cease processing the Application by the Interconnection Requester, in which case the Requester shall be responsible for all study costs incurred to date and the Application shall be deemed withdrawn.

(I) Pursuant to 5.507(E)(6)(d), 5.507(F)(4)(d), and 5.507(G)(4), for those portions, if any, of the study fees for the Feasibility, System Impact, and Facilities Studies which the Interconnecting Utility bills to the Interconnection Requester and for which the Interconnecting Utility could also recover in its rates, the Interconnecting Utility shall book this income separately.

5.507 Fast Track Screening Process

(A) Within 30 days after an Application is determined to be complete, the Interconnecting Utility shall perform a review of the Application under the Fast Track Screening Criteria set forth below, shall notify the Interconnection Requester of the results, and shall include with the notification copies of the analysis and data underlying the Interconnecting Utility's determinations under the applicable Fast Track Screening Criteria.

(B) The results of a Fast Track analysis shall be provided to the Interconnection Requester. The results will not only document the pass or fail of the Fast Track screening but also document any agreed-to resolution(s) of a failed item by its number in the Fast Track criteria.

(C) Fast Track Screening Criteria

- (1) The proposed Generation Resource's Point of Interconnection must be on a portion of the Interconnecting Utility's distribution or transmission system that is not otherwise subject to the ISO-NE interconnection procedures.
- (2) The proposed interconnection point is not at transmission voltage (i.e., not over 23 kV line to line or 13.28 kV line to neutral).
- (3) For interconnection to a Radial Feeder, the aggregated generation, including the proposed Generation Resource, on the circuit will not exceed the circuit's minimum load coincident with expected times of generation operation, if available, or if minimum load is not available, 15% of the line section annual peak load as most recently measured at the substation.
- (4) For interconnection of a Generation Resource to the load side of spot network protectors, the proposed Generation Resource must utilize an inverter-based

equipment package and, together with the aggregated other inverter-based generation, shall not exceed the smaller of 5% of a spot network's maximum load or 50 kW.

- (5) The proposed Generation Resource, in aggregation with other generation on the distribution circuit, shall not contribute more than 10% to the circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed Generation Resource.
- (6) The proposed Generation Resource, in aggregation with other generation on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers) or Interconnection Requester equipment on the system to exceed 87.5% of the short-circuit interrupting capability; nor shall the Generation Resource be proposed for a circuit that already exceeds 87.5% of the short-circuit interrupting capability.
- (7) For interconnection of a proposed single-phase or effectively grounded three-phase Generation Resource where the primary distribution system is three-phase, four-wire, the Generation Resource shall be connected line-to-neutral. For interconnection of a proposed single-phase or three-phase Generation Resource where the primary distribution system is three-phase, three-wire, the Generation Resource shall be connected line to line.
- (8) If the proposed Generation Resource is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed Generation Resource, shall not exceed 20kW.
- (9) If the Generation Resource is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition will not create an imbalance between the two sides of the 240 volt service of more than 20% of the service transformer nameplate.
- (10) The proposed Generation Resource is not located in an area where there are known or posted transient stability limitations to generating units located in the general electric vicinity, including but not limited to known harmonic issues.
- (11) No system modifications, in excess of limited preparations that do not necessitate a Facilities Study, are required to facilitate the interconnection of the Generation Resource.
- (12) The aggregated generation, including the proposed Generation Resource, on a distribution circuit will not cause any distribution protective devices and equipment, including but not limited to conductors, substation transformers, line stepdown transformers, substation breakers, fuse cutouts, and line reclosers, or customer equipment on the system, to compromise the device's

continuous duty ratings and protection settings as determined by the Interconnecting Utility.

- (13) Voltage drop caused by starting generation is within acceptable limits, meaning that inrush current caused by the startup of the proposed Generation Resource up to once per hour, is not greater than 3% of the available fault current or does not cause greater than a 3% voltage deviation at the Point of Interconnection as modeled in an unbalanced load flow. Voltage drop due to starting the proposed Generation Resource more than once per hour meets a tighter inrush-current tolerance to be determined by the Interconnecting Utility. This criterion is applicable only to synchronous or induction Generation Resources.
- (14) The Interconnection Requester affirms that the proposed Generation Resource meets the applicable codes and standards of Section 5.515 or is a certified equipment package under Section 5.514. Flicker caused by the proposed Generation Resource shall comply with IEEE Standard 1453.
- (15) For any single Generation Resource, the available utility short circuit current at the Point of Interconnection divided by the rated output current of the Generation Resource is no less than:
- (a) 50 for Generation Resources of less than 100 kW;
 - (b) 40 for Generation Resources from 100 kW to less than 500 kW; and
 - (c) 20 for Generation Resources equal to or greater than 500 kW.
- (D) If the proposed interconnection passes all of the applicable Fast Track Screening Criteria, the Interconnection Request shall be approved and the Application shall not require additional study. The Utility shall provide the Interconnection Requester with an executable interconnection agreement within 7 days after the completion of the Fast Track Screening.
- (E) If the proposed interconnection fails one or more of the Fast Track Screening Criteria, but the Interconnecting Utility determines that the Generation Resource may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the Interconnecting Utility shall notify the Interconnection Requester in writing and provide an executable Interconnection Agreement within 7 days. The Interconnecting Utility shall provide, for each failed criterion, a technical justification in the Fast Track results regarding why the proposed Generation Resource may nevertheless be interconnected consistent with safety, reliability, and power quality standards.
- (F) If the proposed interconnection fails the Fast Track Screening Criteria, and the Interconnecting Utility does not or cannot determine from the initial review that the Generation Resource may nevertheless be interconnected consistent with safety, reliability, and power quality standards unless the Interconnection Requester is

- willing to consider minor modifications or further study, the Interconnecting Utility shall provide the Interconnection Requester with the opportunity to attend a Scoping Meeting. If the Interconnection Requester indicates in response to this opportunity that it does not want to hold a Scoping Meeting or proceed to Supplemental Review as described in Section 5.508 or additional study as described in Sections 5.509, 5.510, and 5.511, the Application will be considered withdrawn.
- (G) If mutually agreed upon, a Scoping Meeting to discuss available options may be scheduled and held within 14 days of the Interconnecting Utility notifying the Interconnection Requester of the results of the review of the Fast Track Screening Criteria. The purpose of the Scoping Meeting may be to review existing studies relevant to the Interconnection Requester's Interconnection Application, and/or to further discuss whether the Interconnecting Utility should perform a Supplemental Review as described in Section 5.508 or other additional study.
- (H) At the time of notification of the Interconnecting Utility's determination, or at the Scoping Meeting, the Interconnecting Utility shall:
- (1) Offer to perform limited and low-cost modifications to the Interconnecting Utility's electric system (e.g., changing meters, fuses, relay settings) and provide a non-binding good-faith estimate of the cost to make such modifications to the Interconnecting Utility's electric system. If the Interconnection Requester agrees to pay for the modifications to the Interconnecting Utility's electric system, the Utility will provide the Interconnection Requester with an executable interconnection agreement within 14 days of the Scoping Meeting or, if there is no Scoping Meeting, within 14 days of the notification of the Interconnecting Utility's determination; or
 - (2) Offer to perform a supplemental review in accordance with Section 5.508 and provide a non-binding good-faith estimate of the costs of such review; or
 - (3) Obtain the Interconnection Requester's agreement to continue evaluating the Interconnection Request under the Study Processes of Sections 5.509, 5.510, and 5.511.
- (I) If the Interconnecting Utility and the Interconnection Requester agree to proceed with the Interconnection Application and agree that a Supplemental Review should be performed, the procedures of Section 5.508 apply. If the Interconnecting Utility and the Interconnection Requester agree to proceed with the Interconnection Application and agree that a Feasibility Study should be performed, the procedures of Section 5.509 shall apply. If the Interconnecting Utility and the Interconnection Requester agree to proceed with the Interconnection Application, but agree not to perform a Feasibility Study and to proceed directly to a System Impact Study or a Facilities Study, the procedures at Sections 5.510 or 5.511, respectively, shall apply. If mutually agreed upon by the Interconnection Requester and the Interconnecting Utility, the Feasibility, System Impact, and/or Facilities Studies may be combined for the purpose of achieving cost and/or time savings.

5.508 Terms Applicable to All Interconnection Applications

(A) The interconnection of all Generation Resources shall include a utility-accessible, lockable, visible, load-break disconnect switch at the Point of Interconnection.

(B) Interconnection Agreement. Upon completion of the necessary studies, if any, the Application shall be approved and the Interconnecting Utility shall provide the Interconnection Requester an executable Interconnection Agreement with necessary attachments within 5 business days for Fast Track Application, or 15 business days for all other Applications, following the determination that the Interconnection Requester wishes to proceed with the project and confirmation that the Interconnection Requester has agreed to pay the costs of all necessary System Upgrades, and to install Interconnection Facilities at the Interconnection Requester's expense. The Interconnection Requester shall return the executed Interconnection Agreement within one calendar year or the Interconnection Requester's Application shall be deemed withdrawn and the Interconnection Requester shall lose Interconnection Queue position. The Interconnection Requester bears all risk if, during the period between completion of Studies and the return of the executed Interconnection Agreement, (i) network conditions change such that the Studies' results are no longer valid and the Studies need to be revisited and updated at the Interconnection Requester's cost and (ii) the cost estimate for System Upgrades and Interconnection Facilities is no longer valid, except to the extent that these changed circumstances are known or could reasonably have been foreseen by the Interconnecting Utility.

(C) Reasonable Efforts. The Interconnecting Utility shall make reasonable efforts to meet all time frames provided in this Rule unless the Interconnecting Utility and the Interconnection Requester agree to a different schedule. If an Interconnecting Utility cannot meet a deadline provided herein, it shall notify the Interconnection Requester, explain the reason for the failure to meet the deadline and provide an estimated time by which it will complete the applicable interconnection procedure. The Interconnecting Utility shall maintain records, subject to audit, of all Generation Resource Applications received, the times required to complete Application approvals and disapprovals and justification for the actions taken on the Applications. If costs arise from delay despite reasonable efforts of the Interconnecting Utility, these costs shall be borne by the Interconnection Requester. If costs arise from delay resulting from a lack of reasonable efforts on the part of the Interconnecting Utility, such costs shall be borne by the Interconnecting Utility.

(D) Dispute Resolution. If a dispute arises at any time during these procedures, either the Interconnection Requester or the Interconnecting Utility may seek immediate resolution by written petition to the Commission, with copies to the other party and the Vermont Department of Public Service, stating the issues in dispute. Pursuit of dispute resolution shall not affect an Interconnection Requester's Application with regard to consideration for interconnection, nor position in an Interconnection Queue.

5.508 Supplemental Review

- (A) To accept the offer of a Supplemental Review, the Interconnection Requester shall agree in writing by signing the Supplemental Review Agreement and submitting a deposit for the estimated costs of the supplemental review in the amount of the Interconnecting Utility's good-faith estimate of the costs of such review, both within 21 days of the offer. If the written agreement and deposit have not been received by the Interconnecting Utility within that timeframe, the Interconnection Request shall continue to be evaluated under the Section 5.509 study process unless it is withdrawn by the Interconnection Requester.
- (B) The Interconnection Requester shall be responsible for the Interconnecting Utility's actual costs for conducting the Supplemental Review. With Commission approval, Interconnecting Utilities may establish cost-based standard fee(s) for conducting a supplemental review. The Interconnection Requester must pay any review costs that exceed the deposit within 30 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Interconnecting Utility will return such excess within 21 days of the invoice without interest.
- (C) Within 45 days following receipt of the Supplemental Review Agreement and payment, the Interconnecting Utility shall (1) perform a Supplemental Review using the screens identified below and the analysis set forth in Section 5.508(D); (2) notify in writing the Interconnection Requester of the results; and (3) include with the notification copies of the analysis and data underlying the Interconnecting Utility's determinations, including under any of the Fast Track Screening Criteria that the proposed Generation Resource failed.
- (1) Minimum Load Screen: Where 12 months of line section minimum load data (including onsite load but not station service load served by the proposed Generation Resource) are available, can be calculated, can be estimated from existing data, or can be determined from a power flow model, the aggregate Generating Facility capacity on the line section is less than 100% of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed Generation Resource. If minimum load data are not available, or cannot be calculated, estimated, or determined, the Interconnecting Utility shall include the reason(s) that it is unable to calculate, estimate, or determine minimum load in its supplemental review results notification under section (C).
- (a) The type of generation used by the proposed Generation Resource will be taken into account when calculating, estimating, or determining circuit or line section minimum load relevant for the application of screen (C)(1). Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (e.g., 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other generation uses absolute minimum load.
- (b) When this screen is being applied to a Generation Resource that serves

some station service load, only the net injection into the Interconnecting Utility's electric system will be considered as part of the aggregate generation.

- (c) The Interconnecting Utility will not consider as part of the aggregate generation for purposes of this screen generating facility capacity known to be already reflected in the minimum load data.

(2) Voltage and Power Quality Screen: In aggregate with existing generation on the line section: (1) the voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions; (2) the voltage fluctuation is within acceptable limits as defined by Institute of Electrical and Electronics Engineers (IEEE) Standard 1453 and IEEE 1453.1, and any applicable ISO-NE standard.

(3) Safety and Reliability Screen: The location of the proposed Generation Resource and the aggregate generation capacity on the line section do not create impacts on safety or reliability that cannot be adequately addressed without application of the Study Process. The Interconnecting Utility shall give due consideration on the following and other factors in determining potential impacts to safety and reliability in applying this screen.

- (a) Whether the line section has significant minimum loading levels dominated by a small number of customers (e.g., several large commercial customers).

- (b) Whether the loading along the line section is uniform or even.

- (c) Whether the proposed Generation Resource is located in close proximity to the substation (i.e., less than 2.5 electrical circuit miles), and whether the line section from the substation to the Point of Interconnection is a mainline rated for normal and emergency ampacity.

- (d) Whether the proposed Generation Resource incorporates a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time.

- (e) Whether operational flexibility is reduced by the proposed Generation Resource, such that transfer of the line section(s) of the Generation Resource to a neighboring distribution circuit/substation may trigger overloads or voltage issues.

- (f) Whether the proposed Generation Resource employs equipment or systems certified by a recognized standards organization to address technical issues such as, but not limited to, islanding, reverse power flow,

or voltage quality.

(D) The Supplemental Review shall assess whether failed criteria identified in the Fast Track Analysis can be addressed using known solutions that would not require a System Impact Study so that the Generation Resource may be interconnected consistent with safety, reliability, and power quality. The Supplemental Review analysis may include but is not limited to:

- (1) Protection Device Loading and Coordination
- (2) Thermal Loading
- (3) Substation and Transmission Capacity
- (4) System Voltages
 - (a) Steady State Voltage
 - (b) Ground Fault Over Voltage
 - (c) Natural Transients
 - (d) Generator Reconnection
- (5) Islanding
- (6) Impact on Affected Utilities

(E) If the proposed interconnection passes the supplemental screens in Sections (C)(1), (C)(2), and (C)(3) above, or the Interconnecting Utility identifies known solutions through analysis conducted under Section (D) above, the Interconnection Request shall be approved and the Interconnecting Utility will provide the Interconnection Requester with an executable Interconnection Agreement within the timeframes established in sections (E)(1) and (E)(2), below.

(1) If the Supplemental Review shows that the proposed interconnection can be interconnected consistent with safety, reliability, and power quality standards and does not require construction of facilities by the Interconnecting Utility on its own system, the Interconnection Agreement shall be provided within 14 days after the notification of the Supplemental Review results.

(2) If the Supplemental Review shows that interconnection facilities or modifications to the Interconnecting Utility's system are required for the proposed interconnection to be consistent with safety, reliability, and power quality standards and do not require a Facilities Study as described in Section 5.511, then the Interconnection Agreement, along with a non-binding good-faith estimate for the interconnection facilities and/or minor modifications, shall be provided to the Interconnection Requester within 21 days after receiving written notification of the Supplemental Review results.

(G) If the Supplemental Review shows that interconnection facilities or modifications to the Interconnecting Utility's system are required for the proposed interconnection to be interconnected consistent with safety, reliability, and power quality standards and also require a Facilities Study, but do not require a Feasibility or System Impact Study, the project shall proceed to a Facilities Study as described in Section 5.511.

(H) If the Supplemental Review indicates potential for adverse impacts and the Interconnection Requester does not withdraw its Interconnection Request, the procedures of Section 5.509 shall apply. If the Interconnecting Utility and the Interconnection Requester agree to proceed with the Interconnection Application but agree not to perform a Feasibility Study and to proceed directly to a System Impact Study or a Facilities Study, the procedures at Sections 5.510 or 5.511, respectively, shall apply. If mutually agreed upon by the Interconnection Requester and the Interconnecting Utility, the Feasibility, System Impact, and/or Facilities Studies may be combined for purpose of achieving cost and/or time savings. If the Interconnection Requester does not reach any of the agreements set forth in this section, the Interconnection Application shall be withdrawn.

5.509 Disconnection

(A) The following requirements shall govern disconnection from the electrical system of a Generation Resource that was interconnected under these Procedures. These requirements apply to such Generation Resources only and do not supplant Commission Rules 3.300 and 3.400 relating to utility disconnection in general.

(B) The Interconnection Requester retains the option to disconnect temporarily from the Interconnecting Utility's system at any time. Such temporary disconnection shall not be a termination of any Interconnection Agreement unless the Interconnection Requester exercises its termination rights under such agreement.

(C) In the event an Interconnecting Utility needs to perform an Emergency disconnection of a Generation Resource, the Interconnecting Utility shall notify the Interconnection Requester within 24 hours after the disconnection.

(1) If the Emergency is not caused by the Generation Resource, the Interconnecting Utility shall assist the Interconnection Requester with reconnecting the Generation Resource upon cessation of the Emergency.

(2) If the Emergency is caused by the Generation Resource, the Interconnecting Utility shall communicate the nature of the problem to the Interconnection Requester within 5 days, and work with the Interconnection Requester to resolve the problem. If the problem has not been resolved within 30 days of an Emergency disconnection, the Interconnecting Utility shall file a disconnection petition with the Commission. In any proceeding on such a petition, the Interconnecting Utility shall bear the burden of proof to demonstrate the reasonableness of disconnection.

(D) Non-Emergency disconnections shall follow the same procedure as Emergency disconnections outlined above, except that the Interconnecting Utility shall give written notice of the disconnection no earlier than 10 days and no later than 7 days prior to the first date on which disconnection of the Generation Resource may occur. Such notices shall communicate the reason for disconnection to the Interconnection Requester and the expected duration of the disconnection. An Interconnecting Utility may obtain, at the discretion of the Interconnection Requester, an Interconnection Requester's written agreement to notice requirements for non-Emergency disconnections which are different from those set forth in

these procedures, provided that the Interconnecting Utility first advises the Interconnection Requester of its rights under this rule.

(E) An Interconnection Requester whose Generation Resource is involuntarily disconnected may file a complaint with the Commission at any time following disconnection. The Commission may hold a hearing to determine whether the Generation Resource should be reconnected to the Interconnecting Utility. In the event of the filing of such a complaint, the Interconnecting Utility shall bear

5.509 Feasibility Study

- (A) Within 7 days after the close of the Scoping Meeting, or after the date of the decision not to hold a Scoping Meeting, the Interconnecting Utility shall provide the Interconnection Requester an executable Feasibility Study agreement including an outline of the scope of the study and a good-faith estimate of the cost to perform the study. In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 21 days, an executed Feasibility Study agreement along with a deposit of the lesser of 50 percent of estimated Feasibility Study costs or \$1,000.
- (B) A Feasibility Study shall include the following analyses:
- (1) Initial identification of any instances where the short-circuit capability limits of any protective device (circuit breaker, recloser, fuse, etc.) would be exceeded as a result of the interconnection;
 - (2) Initial identification of any thermal overload or voltage limit violations resulting from the interconnection;
 - (3) Initial review of grounding requirements and system protection; and
 - (4) Description and non-binding estimated cost of facilities required to interconnect the facility to an electric distribution power system or directly to a transmission system and to address the identified short-circuit and power-flow issues.
- (C) A Feasibility Study shall model the impact of the Generation Resource regardless of purpose, in order to avoid the further expense and interruption of operation for reexamination of feasibility and impacts if the Interconnection Requester later changes the purpose for which the Generation Resource is being installed.
- (D) A Feasibility Study shall include the feasibility of any interconnection at a proposed project site where there could be multiple potential Points of Interconnection, as requested by the Interconnection Requester.
- (E) In performing the Feasibility Study, the Interconnecting Utility shall rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection

Requester shall not be charged for such existing studies; however, the Interconnection Requester shall be responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the Feasibility Study.

(F) Feasibility Study Report and Cost Reconciliation

(1) Once a Feasibility Study is completed, the Interconnecting Utility shall prepare a Feasibility Study Report, which describes the results of the Feasibility Study, and transmit it to the Interconnection Requester. Barring unusual circumstances outside of the Interconnecting Utility's control, the Interconnecting Utility shall complete a Feasibility Study, and transmit the Feasibility Study Report to the Interconnection Requester, within 45 days of the Interconnection Utility's receipt of an executed Feasibility Study agreement and deposit as described in Section 5.509(A).

(2) The Feasibility Study Report shall also include cost estimates for the Distribution Level System Impact Study, Transmission Level System Impact Study, and Facilities Study, to the extent that any of these studies are determined by the Feasibility Study to be required.

(3) The Interconnecting Utility shall provide the applicable Study Agreement or Interconnection Agreement pursuant to Section 5.509(G), 5.509(H), or 5.509(I).

(4) Cost reconciliation. Within 21 days of submittal of the Feasibility Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the Feasibility Study. The Interconnection Requester must pay the full cost of the Feasibility Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof that the Interconnecting Utility does not itself perform. If the cost of the Feasibility Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the Feasibility Study minus the deposit), without interest, within 30 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the Feasibility Study, the Interconnecting Utility shall refund such excess, without interest, within 21 days of submittal of the Feasibility Study Report.

(G) If a Feasibility Study shows no potential adverse impacts on the electric system, and no additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Interconnection Agreement within 7 days after delivery of the Feasibility Study Report.

(H) If a Feasibility Study shows no potential adverse impacts on the electric system,

but additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Facilities Study agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.511, within 7 days after delivery of the Feasibility Study Report.

- (I) If a Feasibility Study shows the potential for adverse impacts on either the distribution system or the transmission system, the review process shall proceed to the System Impact Study, and the Interconnecting Utility shall send the Interconnection Requester an executable System Impact Study agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.510 within 7 days of the delivery of the Feasibility Study. The executable System Impact Study agreement shall specify whether it and the cost estimate are for a Distribution Level Study, Transmission Level Study, or both.

5.510 Codes and Standards. When any listed version of the following codes and standards is superseded by a revision approved by the standards-making organization, then the revision shall be applied under Section 5.505. Applications that are date and time stamped on or before six months after the revision date may follow the previous version of the standard, unless an immediate threat to safety and reliability exists that requires the retrofit of all similarly situated equipment. Applications that are date and time stamped later than six months after the revision date must follow the revised standard.

(A) IEEE P1547 Standard for Interconnecting Distributed Resources with Electric Power Systems as adopted and successor or related IEEE approved standards.

(B) UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems.

(C) IEEE Standard 929-2000 IEEE Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.

(D) NFPA 70 (2002) National Electrical Code.

(E) IEEE Standard C37.90.1-1989 (R1994) IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems.

(F) IEEE Standard C37.90.2 (1995) IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.

(G) IEEE Standard C37.108-1989 (R2002) IEEE Guide for the Protection of Network Transformers.

(H) IEEE Standard C57.12.44-2000 IEEE Standard Requirements for Secondary Network Protectors.

(I) IEEE Standard C62.41.2-2002 IEEE Recommended Practice on Characterization of Surges in

Low Voltage (1000V and Less) AC Power Circuits:

(J)IEEE Standard C62.45-1992 (R2002) IEEE Recommended Practice on Surge Testing for Equipment Connected to Low Voltage (1000V and Less) AC Power Circuits.

(K)ANSI C84.1-1995 Electric Power Systems and Equipment – Voltage Ratings (60 Hertz).

(L)IEEE Standard 100-2000 IEEE Standard Dictionary of Electrical and Electronic Terms.

(M)NEMA MG 1-1998, Motors and Small Resources, Revision 3.

(N)IEEE Standard 519-1992 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.

5.510 System Impact Study

(A) In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 21 days, an executed System Impact Study agreement along with a deposit equivalent to the estimated cost of the study.

(B) A System Impact Study includes two sub-studies: a Transmission Level Study and a Distribution Level Study. One or both of the sub-studies may be performed, depending on the specific circumstances of the Application and the findings of the Fast Track, Supplemental Review, Scoping Meeting, and/or Feasibility Study. If the Fast Track, Supplemental Review, Scoping Meeting, or Feasibility Study identifies potential adverse impacts on the distribution system, a Distribution Level Study shall be performed. If the Scoping Meeting, Feasibility Study, or Distribution Level Study identifies potential adverse impacts on the transmission system, a Transmission Level Study shall be performed.

(1) The Distribution Level System Impact Study shall consist of a distribution load-flow study, an analysis of equipment-interrupting ratings, protection coordination study, voltage drop and flicker studies, protection and set point coordination studies, and grounding reviews, and the impact on system operation, as necessary.

(2) The Transmission Level System Impact Study shall consist of a short-circuit analysis, a stability analysis, a power-flow analysis, voltage-drop and flicker studies, protection and set-point-coordination studies, and grounding reviews, as necessary.

(C) The purpose of the System Impact Study shall be to identify and specify the impacts on electric transmission and/or distribution system stability and reliability that would result if the proposed Generation Resource were interconnected without project modifications or system modifications, focusing on the adverse impacts identified in the Fast Track, Supplemental Review, Scoping Meeting, or Feasibility

Study, and to identify and study any additional potential impacts.

(D) System Impact Study Report and Cost Reconciliation

- (1) Once a System Impact Study is completed, the Interconnecting Utility shall prepare a System Impact Study Report and transmit it to the Interconnection Requester. Barring unusual circumstances outside of the Interconnecting Utility's control, the System Impact Study determined to be necessary by the Feasibility Study or Scoping Meeting shall be completed and transmitted to the Interconnection Requester within 60 days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was performed, and 90 days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was not performed.
 - (2) The System Impact Study Report shall state the assumptions upon which the System Impact Study is based, state the results of the analyses, and provide the requirements for, or potential impediments to, providing the requested interconnection service, including a preliminary indication of the cost and length of time that would be necessary to correct any problems identified in those analyses and to implement the interconnection. The System Impact Study shall provide a list of facilities that are required as a result of the Interconnection Requester's Application and a non-binding good-faith estimate of cost responsibility and a non-binding good-faith estimate of time to construct. The System Impact Study Report shall also include a Facilities Study agreement or Interconnection Agreement pursuant to Sections 5.510(H) and 5.510(I).
 - (3) Cost reconciliation. Within 21 days of submittal of the System Impact Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the System Impact Study. The Interconnection Requester must pay the full cost of the System Impact Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof that the Interconnecting Utility does not itself perform. If the cost of the System Impact Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the System Impact Study minus the deposit), without interest, within 30 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the System Impact Study, the Interconnecting Utility shall refund such excess, without interest, within 21 days of submittal of the System Impact Study Report.
- (E) If, while conducting the System Impact Study outlined in the executed System Impact Study agreement, the Interconnecting Utility determines that studies beyond those contained in the executed System Impact Study Agreement are required (for instance, if the Feasibility Study recommended that a Distribution Level Study be

- conducted, and, during the course of conducting the Distribution Level Study, the Interconnecting Utility determined that a Transmission Level Study is also required), the Interconnecting Utility shall, within 7 days of making that determination, send the Interconnection Requester a supplemental System Impact Study agreement, including an outline of the scope of the supplemental study and a good-faith estimate of the cost to perform the supplemental study. In order to remain in the Interconnection Queue, the Interconnection Requester must return an executed supplemental System Impact Study Agreement within 21 days with a deposit equivalent to the estimated cost of the supplemental study. Barring unusual circumstances outside of the Interconnecting Utility's control, a supplemental System Impact Study shall be completed and transmitted to the Interconnection Requester within 60 days of the receipt of the supplemental System Impact Study agreement. The report and cost reconciliation shall follow the procedures detailed in Section 5.510(D), above.
- (F) In instances where a Feasibility Study or a System Impact Study shows potential impacts on the transmission system, within 7 days following transmittal of the Feasibility Study Report or System Impact Study report, the Interconnecting Utility shall notify the Affected Systems.
- (G) Where transmission systems and electric power distribution systems have separate owners, such as is the case with transmission-dependent utilities, whether investor-owned or not, the Interconnection Requester or Interconnecting Utility may apply to the nearest transmission utility providing transmission service to the transmission-dependent utility to request project coordination. Affected Systems shall participate in the study and provide all information necessary to prepare the study.
- (H) If a System Impact Study shows that no additional facilities are required, or that the only additional facilities are not transmission voltage equipment or are of a routine nature for the utility, the Interconnecting Utility shall send the Interconnection Requester an executable Interconnection Agreement within 21 days after delivery of the System Impact Study Report.
- (I) If a System Impact Study shows that additional facilities are required, the Interconnecting Utility shall send the Interconnection Requester an executable Facilities Study agreement, including an outline of the scope of the study and a good-faith estimate of the cost to perform the study, pursuant to Section 5.511, within 7 days after delivery of the System Impact Study Report.

5.511 Certification of Generation Resource Equipment Packages

(A) A Generation Resource equipment package shall be considered certified for interconnected operation to an electric power distribution system if it has been approved under the certification process described below:

(B) An equipment package shall be considered certified for interconnected operation if it has been submitted, tested and listed by a nationally recognized testing and certification laboratory or

approved by the U.S. Department of Energy for continuous utility interactive operation in compliance with the applicable Codes and Standards listed inspection 5.510, above. An "equipment package" shall include all interface components including switchgear, inverters, or other interface devices and may include an integrated Generation Resource. If the equipment package has been tested and listed as an integrated package which includes a Generation Resource, it shall not require further design review, testing or additional equipment to meet the certification requirements. If the equipment package includes only the interface components (switchgear, inverters, or other interface devices), then an Interconnection Requester must demonstrate to the Interconnecting Utility that the Generation Resource being utilized with the equipment package is compatible with the equipment package and consistent with the testing and listing specified for the package. If the Generation Resource combined with the equipment package is consistent with the testing and listing performed by the nationally recognized testing and certification laboratory, no further design review, testing or additional equipment shall be required to meet the certification requirements. A certified equipment package does not include equipment provided by the Interconnecting Utility, nor does certification necessarily exempt an equipment package or Generation Resource from commissioning testing required for installation and operation.

5.511 Facilities Study

- (A) In order to remain in the Interconnecting Utility's Interconnection Queue, the Interconnection Requester must return, within 30 days, an executed Facilities Study agreement along with a deposit equivalent to the estimated cost of the study.
- (B) Facilities Study Preparation. Transmission-system and/or distribution-system interconnection design for any required Interconnection Facilities and/or System Upgrades shall be performed under a Facilities Study agreement between the Interconnection Requester and the Interconnecting Utility.
- (C) In some cases, the Interconnection Requester and the Interconnecting Utility may reach agreement allowing the Interconnection Requester to separately arrange for the design of some of the required Interconnection Facilities and/or System Upgrades. In such cases, facilities design shall be reviewed, and modified as necessary by the Interconnecting Utility, prior to acceptance under the provisions of the Facilities Study agreement. If the parties agree to separately arrange for design and construction, the Interconnecting Utility shall make sufficient information available to the Interconnection Requester to permit the Interconnection Requester to obtain an independent design and cost estimate for any necessary facilities. This provision shall not prohibit the Interconnecting Utility and the Interconnection Requester from reaching agreement to protect information that one or the other deems confidential, and shall not require the Interconnecting Utility to disclose information that it is otherwise obliged not to disclose or affect the Commission's authority to compel or restrict disclosure of information.
- (D) System Upgrades. In cases where System Upgrades are required, the Facilities

Study shall be completed and a Facilities Study Report transmitted to the Interconnection Requester within 60 days of the receipt of the Facilities Study agreement. In cases where no System Upgrades are required, and the required facilities are limited to Interconnection Facilities, the Facilities Study shall be completed and a Facilities Study Report transmitted to the Interconnection Requester within 30 days. The Facilities Study Report shall include a good-faith estimate of the cost of any recommended System Upgrades or Interconnection Facilities.

- (E) The Interconnecting Utility shall send the Interconnection Requester an executable Interconnection Agreement within 21 days after delivery of the Facilities Study Report.
- (F) **Cost Reconciliation.** Within 21 days of submittal of the Facilities Study Report, the Interconnecting Utility shall provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the Facilities Study. The Interconnection Requester must pay the full cost of the Facilities Study. The Interconnecting Utility shall base all study fees on actual costs, which include, but are not limited to, salaries, overheads, and out-of-pocket costs including costs billed by other entities for new studies or portions thereof that the Interconnecting Utility does not itself perform. If the cost of the Facilities Study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the Facilities Study minus the deposit), without interest, within 30 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the cost of the Facilities Study, the Interconnecting Utility shall refund such excess, without interest, within 21 days of submittal of the Facilities Study Report.
- (G) **Costs of Facilities and Cost Responsibility.** Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Generation Resource, the Interconnecting Utility shall provide a detailed good-faith estimate of the costs, and the Interconnection Requester shall pay the full amount of the estimate or, if such costs are covered by an Interconnection, Line Extension, or other tariff, said charges shall be billed and paid pursuant to the tariff.
- (H) **Grouping of Facilities.** An Interconnecting Utility may propose to group facilities required for more than one Interconnection Requester in order to minimize facilities' costs through economies of scale, but any Interconnection Requester may require the installation of facilities required for its own Generation Resource if it is willing to pay the costs of those facilities.

5.512 Terms Applicable to All Interconnection Applications

- (A) The Interconnection Requester is responsible for meeting all applicable codes and standards of Section 5.515 unless interconnection is accomplished by a certified equipment package under Section 5.514.

Interconnection Agreement. Except in the case of net-metering systems that interconnect without a written agreement, upon completion of the necessary studies, if any, the Application shall be approved and the Interconnecting Utility shall provide the Interconnection Requester an executable Interconnection Agreement with necessary attachments within the time limits identified in the portions of this Rule detailing the study processes used for the proposed Generation Resource. The Interconnection Requester's Application shall be deemed withdrawn and the Interconnection Requester shall lose its Interconnection Queue position unless the Interconnection Requester returns the executed Interconnection Agreement by the later of (1) three months after provision of the executable Interconnection Agreement or (2) 30 days after the issuance of the Certificate of Public Good for the Generation Resource but in no case later than one year after provision of the executable Interconnection Agreement. The Interconnection Requester bears all risk if, during the period between completion of Studies and the return of the executed Interconnection Agreement, (i) network conditions change such that the Studies' results are no longer valid and the Studies need to be revisited and updated at the Interconnection Requester's cost and (ii) the cost estimate for System Upgrades and Interconnection Facilities is no longer valid, except to the extent that these changed circumstances are known or could reasonably have been foreseen by the Interconnecting Utility.

- (B) The Interconnection Agreement shall require that Voltage Ride Through capability, Frequency Ride Through capability, and Smart Inverter functionality comply with the standards required by Section 5.515. If mutually agreed upon by the Interconnecting Utility and Interconnection Requester, the Interconnection Agreement shall require enhanced Voltage Ride Through, Frequency Ride Through, or other Smart Inverter functionality, consistent with the standards required by Section 5.515 and with Good Utility Practice.
- (C) Reasonable Efforts. The Interconnecting Utility shall make reasonable efforts to meet all time frames provided in this Rule unless the Interconnecting Utility and the Interconnection Requester agree to a different schedule. If an Interconnecting Utility cannot meet a deadline provided herein, it shall notify the Interconnection Requester, explain the reason for the failure to meet the deadline, and provide an estimated time by which it will complete the applicable interconnection procedure. The Interconnecting Utility shall maintain records, subject to audit, of all Generation Resource Applications received, the times required to complete Application approvals and disapprovals, and justification for the actions taken on the Applications. If costs arise from delay despite reasonable efforts of the Interconnecting Utility, these costs shall be borne by the Interconnection Requester. If costs arise from delay resulting from a lack of reasonable efforts on the part of the Interconnecting Utility, such costs shall be borne by the Interconnecting Utility.
- (D) Dispute Resolution. If a dispute arises at any time during these procedures, either

the Interconnection Requester or the Interconnecting Utility may seek immediate resolution by written petition to the Commission, with copies to the other party and the Vermont Department of Public Service, stating the issues in dispute. Pursuit of dispute resolution shall not affect an Interconnection Requester's Application with regard to consideration for interconnection, nor position in an Interconnection Queue.

- (E) Interconnection Metering. Any metering necessitated by the interconnection of the Generation Resource shall be installed at the Interconnection Requester's expense in accordance with the Interconnecting Utility's reasonable specifications.
- (F) Commissioning. Commissioning tests of an Interconnection Requester's installed equipment shall be performed pursuant to applicable codes and standards as identified by the parties in the Interconnection Agreement. The Interconnecting Utility shall be given 14 days' written notice, or as otherwise mutually agreed by the parties, of the tests and may have one or more of its representatives present to witness the commissioning tests.
- (G) As Built Drawings. Except in the case of Generation Resources with a capacity of less than 150 kW, the Interconnection Requester shall, within 30 days of the Generation Resource in-service date, supply to the Interconnecting Utility "As Built" drawings depicting the details of what was installed during the construction process. This drawing shall be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility shall be addressed pursuant to the Interconnection Agreement.
- (H) Notification Prior to Exceeding Cost Estimate. For any study, Interconnection Facilities, or System Upgrades for which this Rule requires the Interconnection Requester to bear costs, the Interconnecting Utility shall, prior to exceeding a previously provided cost estimate, promptly notify the Interconnection Requester if such costs are likely to exceed the previously provided estimate and shall provide the Requester with a revised total estimated cost for the study. The Interconnecting Utility shall proceed with completing the study, Interconnection Facilities, or System Upgrades unless and until requested to cease processing the Application by the Interconnection Requester, in which case the Requester shall be responsible for all such costs incurred to date and the Application shall be deemed withdrawn.
- (I) Pursuant to Sections 5.509, 5.510, and 5.511, for those portions, if any, of the study fees for the Feasibility, System Impact, and Facilities Studies that the Interconnecting Utility bills to the Interconnection Requester and for which the Interconnecting Utility could also recover in its rates, the Interconnecting Utility shall book this income separately.

5.513 Disconnection

- (A) The following requirements shall govern disconnection from the electrical system

of a Generation Resource that was interconnected under these procedures. These requirements apply to such Generation Resources only and do not supplant Commission Rules 3.300 and 3.400 relating to utility disconnection in general.

- (B) The Interconnection Requester retains the option to disconnect temporarily from the Interconnecting Utility's system at any time. Such temporary disconnection shall not be a termination of any Interconnection Agreement unless the Interconnection Requester exercises its termination rights under such agreement.
- (C) In the event an Interconnecting Utility needs to perform an Emergency disconnection of a Generation Resource, the Interconnecting Utility shall notify the Interconnection Requester within 24 hours after the disconnection.
 - (1) If the Emergency is not caused by the Generation Resource, the Interconnecting Utility shall assist the Interconnection Requester with reconnecting the Generation Resource upon cessation of the Emergency.
 - (2) If the Emergency is caused by the Generation Resource, the Interconnecting Utility shall communicate the nature of the problem to the Interconnection Requester within 5 days and shall work with the Interconnection Requester to resolve the problem. If the problem has not been resolved within 30 days of an Emergency disconnection, the Interconnecting Utility shall file a disconnection petition with the Commission. In any proceeding on such a petition, the Interconnecting Utility shall bear the burden of proof to demonstrate the reasonableness of disconnection.
- (D) Non-Emergency disconnections shall follow the same procedure as Emergency disconnections outlined above, except that the Interconnecting Utility shall give written notice of the disconnection no earlier than 10 days and no later than 7 days prior to the first date on which disconnection of the Generation Resource may occur. Such notice shall communicate the reason for disconnection to the Interconnection Requester and the expected duration of the disconnection. An Interconnecting Utility may obtain, at the discretion of the Interconnection Requester, an Interconnection Requester's written agreement to notice requirements for non-Emergency disconnections that are different from those set forth in these procedures, provided that the Interconnecting Utility first advises the Interconnection Requester of its rights under this Rule.
- (E) An Interconnection Requester whose Generation Resource is involuntarily disconnected may file a complaint with the Commission at any time following disconnection. The Commission may hold a hearing to determine whether the Generation Resource should be reconnected to the Interconnecting Utility. In the event of the filing of such a complaint, the Interconnecting Utility shall bear the burden of proof to demonstrate the reasonableness of disconnection.

5.514 Certification of Generation Resource Equipment Packages

- (A) A Generation Resource equipment package shall be considered certified for interconnected operation to an electric power distribution system if it has been approved under the certification process described below.

An equipment package shall be considered certified for interconnected operation if it has been submitted, tested, and listed by a nationally recognized testing and certification laboratory or approved by the U.S. Department of Energy for continuous utility interactive operation in compliance with the applicable Codes and Standards listed in Section 5.515, below. An "equipment package" shall include all interface components including switchgear, inverters, or other interface devices and may include an integrated Generation Resource. If the equipment package has been tested and listed as an integrated package that includes a Generation Resource, it shall not require further design review, testing, or additional equipment to meet the certification requirements. If the equipment package includes only the interface components (switchgear, inverters, or other interface devices), then an Interconnection Requester must demonstrate to the Interconnecting Utility that the Generation Resource being utilized with the equipment package is compatible with the equipment package and consistent with the testing and listing specified for the package. If the Generation Resource combined with the equipment package is consistent with the testing and listing performed by the nationally recognized testing and certification laboratory, no further design review, testing, or additional equipment shall be required to meet the certification requirements. A certified equipment package does not include equipment provided by the Interconnecting Utility, nor does certification necessarily exempt an equipment package or Generation Resource from commissioning testing required for installation and operation.

5.515 Codes and Standards

When any listed version of the following codes and standards is superseded by a revision approved by the standards-making organization, then the revision shall be applied where these codes and standards are referenced in this Rule. Applications that are date-and-time-stamped on or before six months after the revision date may follow the previous version of the standard, unless an immediate threat to safety and reliability exists that requires the retrofit of all similarly situated equipment. Applications that are date-and-time-stamped later than six months after the revision date must follow the revised standard.

- (1) IEEE 1547 Series of Standards for Interconnecting Distributed Resources with Electric Power Systems as adopted and successor or related IEEE-approved standards.
- (2) UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems.
- (3) NFPA 70 National Electrical Code - NEC

- (4) IEEE Standard C37.90.1 IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems.
- (5) IEEE Standard C37.90.2 IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.
- (6) IEEE Standard C37.108 IEEE Guide for the Protection of Network Transformers.
- (7) IEEE Standard C57.12.44 IEEE Standard Requirements for Secondary Network Protectors.
- (8) IEEE Standard C62.41.2 IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits.
- (9) IEEE Standard C62.45 IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits.
- (10) ANSI C84.1 Electric Power Systems and Equipment - Voltage Ratings (60 Hertz).
- (11) IEEE Standard 100 IEEE Standard Dictionary of Electrical and Electronic Terms.
- (12) NEMA MG 1 Motors and Small Resources.
- (13) IEEE Standard 519 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.
- (14) IEEE Standard 1453 IEEE Recommended Practice--Adoption of IEC 61000-4-15:2010, Electromagnetic compatibility (EMC)--Testing and measurement techniques--Flickermeter--Functional and design specifications.
- (15) IEEE Standard 1453.1-2012 IEEE Adoption of IEC TR 61000-3-7 2008 Assessment of emission limits for the connection of fluctuating installations to MV, HV, and EHV power systems