

## Final Proposed Filing - Coversheet

### Instructions:

In accordance with Title 3 Chapter 25 of the Vermont Statutes Annotated and the “Rule on Rulemaking” adopted by the Office of the Secretary of State, this filing will be considered complete upon filing and acceptance of these forms with the Office of the Secretary of State, and the Legislative Committee on Administrative Rules.

All forms shall be submitted at the Office of the Secretary of State, no later than 3:30 pm on the last scheduled day of the work week.

The data provided in text areas of these forms will be used to generate a notice of rulemaking in the portal of “Proposed Rule Postings” online, and the newspapers of record if the rule is marked for publication. Publication of notices will be charged back to the promulgating agency.

**PLEASE REMOVE ANY COVERSHEET OR FORM NOT REQUIRED WITH THE CURRENT FILING BEFORE DELIVERY!**

**Certification Statement:** As the adopting Authority of this rule (see 3 V.S.A. § 801 (b) (11) for a definition), I approve the contents of this filing entitled:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

\_\_\_\_\_/s/ Anthony Z. Roisman\_\_\_\_\_, on 11/3/2023  
(signature) (date)

**Printed Name and Title:**

Anthony Roisman

Chair, Vermont Public Utility Commission

RECEIVED BY: \_\_\_\_\_

- Coversheet
- Adopting Page
- Economic Impact Analysis
- Environmental Impact Analysis
- Strategy for Maximizing Public Input
- Scientific Information Statement (if applicable)
- Incorporated by Reference Statement (if applicable)
- Clean text of the rule (Amended text without annotation)
- Annotated text (Clearly marking changes from previous rule)
- ICAR Minutes
- Copy of Comments
- Responsiveness Summary

1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

2. PROPOSED NUMBER ASSIGNED BY THE SECRETARY OF STATE  
23P 020

3. ADOPTING AGENCY:

Vermont Public Utility Commission

4. PRIMARY CONTACT PERSON:

*(A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE).*

Name: Jake Marren

Agency: Vermont Public Utility Commission

Mailing Address: 12 State Street 4<sup>th</sup> Fl.

Telephone: 802-828-2358 Fax: 802-828-3351

E-Mail: Jake.Marren@vermont.gov

Web URL *(WHERE THE RULE WILL BE POSTED)*:

<https://puc.vermont.gov/about-us/statutes-and-rules/proposed-changes-rule-5500>

5. SECONDARY CONTACT PERSON:

*(A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON).*

Name: Mary Jo Krolewski

Agency: Vermont Public Utility Commission

Mailing Address: 12 State Street 4<sup>th</sup> Fl.

Telephone: 802-828-2358 Fax: 802-8283351

E-Mail: Mary-Jo.Krolewski@vermont.gov

6. RECORDS EXEMPTION INCLUDED WITHIN RULE:

*(DOES THE RULE CONTAIN ANY PROVISION DESIGNATING INFORMATION AS CONFIDENTIAL; LIMITING ITS PUBLIC RELEASE; OR OTHERWISE, EXEMPTING IT FROM INSPECTION AND COPYING?)* No

IF YES, CITE THE STATUTORY AUTHORITY FOR THE EXEMPTION:

PLEASE SUMMARIZE THE REASON FOR THE EXEMPTION:

7. LEGAL AUTHORITY / ENABLING LEGISLATION:

*(THE SPECIFIC STATUTORY OR LEGAL CITATION FROM SESSION LAW INDICATING WHO THE ADOPTING ENTITY IS AND THUS WHO THE SIGNATORY SHOULD BE. THIS SHOULD BE A SPECIFIC CITATION NOT A CHAPTER CITATION).*

Public Act No. 61. § 7 (2006 Vt., Adj. Sess.); 30 V.S.A. § 8011(c).

8. EXPLANATION OF HOW THE RULE IS WITHIN THE AUTHORITY OF THE AGENCY:

In Act 61 of 2006, the General Assembly directed the Commission to adopt standards governing the interconnection of distributed generation by "rule or order." In 2006, the Commission adopted Rule 5.500. In 2022, the General Assembly enacted 30 V.S.A. § 8011, which authorizes the Commission to implement rules governing the interconnection of energy storage devices.

9. THE FILING HAS CHANGED SINCE THE FILING OF THE PROPOSED RULE.

10. THE AGENCY HAS INCLUDED WITH THIS FILING A LETTER EXPLAINING IN DETAIL WHAT CHANGES WERE MADE, CITING CHAPTER AND SECTION WHERE APPLICABLE.

11. SUBSTANTIAL ARGUMENTS AND CONSIDERATIONS WERE RAISED FOR OR AGAINST THE ORIGINAL PROPOSAL.

12. THE AGENCY HAS INCLUDED COPIES OF ALL WRITTEN SUBMISSIONS AND SYNOPSES OF ORAL COMMENTS RECEIVED.

13. THE AGENCY HAS INCLUDED A LETTER EXPLAINING IN DETAIL THE REASONS FOR THE AGENCY'S DECISION TO REJECT OR ADOPT THEM.

14. CONCISE SUMMARY (150 WORDS OR LESS):

This rulemaking involves amendments to the interconnection rule, including revising the amount of the application fee; adopting standards for the interconnection of storage facilities; updating the procedures for filing an application with the interconnecting utility; establishing simplified procedures for small projects; revising the screening criteria for projects; updating the technical standards applicable to the review of all projects; and establishing requirements for limited export projects. The Commission has reorganized the structure of the

proposed rule to improve readability and reduce repetition compared to the current rule.

**15. EXPLANATION OF WHY THE RULE IS NECESSARY:**

Since the adoption of Rule 5.500 in 2006, there have been significant changes in distributed energy technology, including the increasing use of energy storage devices (e.g., batteries). This rulemaking updates Vermont's interconnection requirements to include ride-through requirements for voltage and frequency excursions for distributed generation resources. The proposal addresses the interconnection of energy storage devices. The rule is also necessary to ensure that the interconnection rule is compatible with the Commission's net-metering rule.

**16. EXPLANATION OF HOW THE RULE IS NOT ARBITRARY:**

The rule reflects substantial input from affected stakeholders, including the Vermont electric distribution and transmission utilities, renewable energy developers, and the Vermont Department of Public Service. The provisions of the rule are necessary to protect the stability, reliability, and safety of the electric grid and to ensure that the cost of upgrades to the grid are allocated to the appropriate entities.

**17. LIST OF PEOPLE, ENTERPRISES AND GOVERNMENT ENTITIES AFFECTED BY THIS RULE:**

The rule will affect entities seeking to interconnect distributed energy resources and the Vermont distribution and transmission electric utilities. The rule will affect all electric consumers by protecting the stability, reliability, and safety of the electric grid.

**18. BRIEF SUMMARY OF ECONOMIC IMPACT (150 WORDS OR LESS):**

The rule will have a small economic impact on interconnection requesters. The rule will increase the standard application fee from \$300 to \$600 for projects with a nameplate rating of greater than 150 kW. Projects less than 150 kW will not pay an application fee unless the Commission approves a utility tariff containing cost-based fees. The application fee was last set in 2006 and the increase is necessary to cover the utilities' actual costs to review applications.



The rule streamlines the interconnection application process for small distributed energy resources and may result in economic savings for such projects, though the experience of any individual project will depend on factors such as the condition of the grid where the project is seeking to interconnect and the number and type of other projects seeking to interconnect at that time and location.

19. A HEARING WAS HELD.

20. HEARING INFORMATION

(THE FIRST HEARING SHALL BE NO SOONER THAN 30 DAYS FOLLOWING THE POSTING OF NOTICES ONLINE).

IF THIS FORM IS INSUFFICIENT TO LIST THE INFORMATION FOR EACH HEARING, PLEASE ATTACH A SEPARATE SHEET TO COMPLETE THE HEARING INFORMATION.

Date: 8/15/2023

Time: 01:00 PM

Street Address: Virtual

Zip Code: NA

URL for Virtual: <https://meet.goto.com/151370229>

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Date:

Time: AM

Street Address:

Zip Code:

URL for Virtual:

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Date:

Time: AM

Street Address:

Zip Code:

URL for Virtual:

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Date:

Time: AM

Street Address:

Zip Code:

URL for Virtual:

21. DEADLINE FOR COMMENT (NO EARLIER THAN 7 DAYS FOLLOWING LAST HEARING):

8/22/2023

KEYWORDS (PLEASE PROVIDE AT LEAST 3 KEYWORDS OR PHRASES TO AID IN THE SEARCHABILITY OF THE RULE NOTICE ONLINE).

Energy

Energy Storage Devices

Interconnection

Distributed Energy Resources

## Adopting Page

### Instructions:

This form must accompany each filing made during the rulemaking process:

Note: To satisfy the requirement for an annotated text, an agency must submit the entire rule in annotated form with proposed and final proposed filings. Filing an annotated paragraph or page of a larger rule is not sufficient. Annotation must clearly show the changes to the rule.

When possible, the agency shall file the annotated text, using the appropriate page or pages from the Code of Vermont Rules as a basis for the annotated version. New rules need not be accompanied by an annotated text.

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1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

2. ADOPTING AGENCY:

Vermont Public Utility Commission

3. TYPE OF FILING (*PLEASE CHOOSE THE TYPE OF FILING FROM THE DROPDOWN MENU BASED ON THE DEFINITIONS PROVIDED BELOW*):

- **AMENDMENT** - Any change to an already existing rule, even if it is a complete rewrite of the rule, it is considered an amendment if the rule is replaced with other text.
- **NEW RULE** - A rule that did not previously exist even under a different name.
- **REPEAL** - The removal of a rule in its entirety, without replacing it with other text.

This filing is **AN AMENDMENT OF AN EXISTING RULE** .

4. LAST ADOPTED (*PLEASE PROVIDE THE SOS LOG#, TITLE AND EFFECTIVE DATE OF THE LAST ADOPTION FOR THE EXISTING RULE*):

06-P07 INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES



## INTERAGENCY COMMITTEE ON ADMINISTRATIVE RULES (ICAR) MINUTES

**Meeting Date/Location:** June 12, 2023, virtually via Microsoft Teams  
**Members Present:** Chair Sean Brown, Brendan Atwood, Jennifer Mojo, Diane Sherman, Michael Obuchowski, Donna Russo-Savage, Nicole Dubuque and Jared Adler  
**Members Absent:** John Kessler  
**Minutes By:** Melissa Mazza-Paquette

- 2:00 p.m. meeting called to order, welcome and introductions.
- Review and approval of minutes from the May 8, 2023 meeting.
- No additions/deletions to agenda. Agenda approved as drafted.
- No public comments made.
- Presentation of Proposed Rules on pages 2-7 to follow.
  1. Rule 5.400 5.400 Petitions to Construct Electric and Gas Facilities Pursuant to 30 V.S.A. §248, Public Utility Commission, page 2
  2. 5.100 Rule Pertaining to Construction and Operation of Net-Metering Systems (the "Net-Metering Rule"), Vermont Public Utility Commission, page 3
  3. Rule 5.500: Interconnection Procedures For Proposed Electric Generation Resources And Energy Storage Devices, Vermont Public Utility Commission, page 4
  4. Education Quality Standards (Rule Series 2000), State Board of Education, page 5
  5. Vermont Use of Public Waters Rules, Agency of Natural Resources, page 6
  6. Medicaid Coverage of Exception Requests, Agency of Human Services, page 7
- Committee discussion postpone to a future meeting date:
  - Potential resources available for proposed rules to be reviewed for copyediting prior to presenting to ICAR.
  - Use of terms 'regulation' and 'promulgation': Administrative Procedure Act rules are adopted. Regulations are not promulgated.
- Other business: Donna Russo-Savage resigned from ICAR effective with her retirement date of June 30, 2023.
- Next scheduled meeting is July 10, 2023 at 2:00 p.m.
- 3:54 p.m. meeting adjourned.

**Proposed Rule:** Rule 5.500: Interconnection Procedures For Proposed Electric Generation Resources And Energy Storage Devices, Vermont Public Utility Commission

**Presented By:** Jake Marren

Motion made to accept the rule by Brendan Atwood, seconded by Diane Sherman, and passed unanimously with the following recommendations:

1. Proposed Filing – Coversheet, #8: Include a detailed description of what's been changed - can use language from #9.
2. Adopting Page, #4: Include the effective date of the last adoption for the existing rule.

DRAFT



## Economic Impact Analysis

### **Instructions:**

In completing the economic impact analysis, an agency analyzes and evaluates the anticipated costs and benefits to be expected from adoption of the rule; estimates the costs and benefits for each category of people enterprises and government entities affected by the rule; compares alternatives to adopting the rule; and explains their analysis concluding that rulemaking is the most appropriate method of achieving the regulatory purpose. If no impacts are anticipated, please specify “No impact anticipated” in the field.

Rules affecting or regulating schools or school districts must include cost implications to local school districts and taxpayers in the impact statement, a clear statement of associated costs, and consideration of alternatives to the rule to reduce or ameliorate costs to local school districts while still achieving the objectives of the rule (see 3 V.S.A. § 832b for details).

Rules affecting small businesses (excluding impacts incidental to the purchase and payment of goods and services by the State or an agency thereof), must include ways that a business can reduce the cost or burden of compliance or an explanation of why the agency determines that such evaluation isn’t appropriate, and an evaluation of creative, innovative or flexible methods of compliance that would not significantly impair the effectiveness of the rule or increase the risk to the health, safety, or welfare of the public or those affected by the rule.

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#### 1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED  
ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE  
DEVICES**

#### 2. ADOPTING AGENCY:

Vermont Public Utility Commission

#### 3. CATEGORY OF AFFECTED PARTIES:

*LIST CATEGORIES OF PEOPLE, ENTERPRISES, AND GOVERNMENTAL ENTITIES POTENTIALLY  
AFFECTED BY THE ADOPTION OF THIS RULE AND THE ESTIMATED COSTS AND BENEFITS  
ANTICIPATED:*

Customers and developers seeking to interconnect  
distributed energy resources

Electric utilities

The Vermont Department of Public Service

The rule will have a direct economic impact on entities seeking to interconnect distributed energy resources with a capacity of 150 kW or greater by increasing the application fee for interconnection requests. In 2006, the Commission set the standard application fee at \$300. In response to comments from the distribution utilities that the application fee no longer covers the utilities' cost to review interconnection applications, the Commission is proposing to raise the standard fee to \$600. The proposed rule also would allow a utility to propose different fees by filing a tariff for approval by the Commission. Tariff-based fees will only be approved if they are just and reasonable based on the utility's actual costs to review an application. The additional fee revenue received by utilities will have a small beneficial impact on electricity rates because the utility will require less revenue from electricity sales to cover the costs of its review under this rule.

The rule may also have indirect economic impacts on entities seeking to interconnect. The rule revises the procedures for reviewing applications and updates the technical standards used by the utility to ensure that a proposed interconnection will not adversely affect system stability, reliability, and safety. These changes may increase or decrease the cost of interconnecting a project to the grid.

#### 4. IMPACT ON SCHOOLS:

*INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON PUBLIC EDUCATION, PUBLIC SCHOOLS, LOCAL SCHOOL DISTRICTS AND/OR TAXPAYERS CLEARLY STATING ANY ASSOCIATED COSTS:*

The rule does not affect public schools, school districts, or taxpayers unless the public school or district is seeking to interconnect a distributed energy resource.

#### 5. ALTERNATIVES: *CONSIDERATION OF ALTERNATIVES TO THE RULE TO REDUCE OR AMELIORATE COSTS TO LOCAL SCHOOL DISTRICTS WHILE STILL ACHIEVING THE OBJECTIVE OF THE RULE.*

The rule contains necessary standards and procedures to ensure that the interconnection of distributed energy

resources will not affect the safety, stability, and reliability of the grid. These objectives cannot be achieved through alternative procedures for school districts.

6. IMPACT ON SMALL BUSINESSES:

*INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON SMALL BUSINESSES (EXCLUDING IMPACTS INCIDENTAL TO THE PURCHASE AND PAYMENT OF GOODS AND SERVICES BY THE STATE OR AN AGENCY THEREOF):*

The rule only affects small businesses that are seeking to interconnect a distributed energy resource. If the small business is seeking to interconnect a project with a nameplate rating of more than 150 kW, the rule will increase the review fee from \$300 to \$600.

7. SMALL BUSINESS COMPLIANCE: *EXPLAIN WAYS A BUSINESS CAN REDUCE THE COST/BURDEN OF COMPLIANCE OR AN EXPLANATION OF WHY THE AGENCY DETERMINES THAT SUCH EVALUATION ISN'T APPROPRIATE.*

Regardless of whether the interconnection requester is a private individual, small business, large business, or other entity, compliance with the proposed rule is the most appropriate way to ensure that all interconnections do not adversely affect the grid. Therefore, the Commission has not included alternative methods of compliance specific only to small businesses as a part of the proposed Rule.

8. COMPARISON:

*COMPARE THE IMPACT OF THE RULE WITH THE ECONOMIC IMPACT OF OTHER ALTERNATIVES TO THE RULE, INCLUDING NO RULE ON THE SUBJECT OR A RULE HAVING SEPARATE REQUIREMENTS FOR SMALL BUSINESS:*

State law directs the Commission to adopt and implement standards and procedures governing the interconnection of distributed energy resources. Therefore, not having interconnection standards is not an option.

As to separate requirements for small businesses, proposed distributed energy resources must not cause safety, stability, or reliability issues for the grid irrespective of whether the applicant is a small business or other entity. Thus, the Commission has not proposed separate requirements for small businesses.

9. **SUFFICIENCY:** *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*

This economic impact statement complies with the requirements of 3 V.S.A. § 838(b). The analysis is based upon the proposed amendments to the Interconnection Rule and the information provided by stakeholders and did not rely upon any specific internal or external documents.

## Environmental Impact Analysis

### **Instructions:**

In completing the environmental impact analysis, an agency analyzes and evaluates the anticipated environmental impacts (positive or negative) to be expected from adoption of the rule; compares alternatives to adopting the rule; explains the sufficiency of the environmental impact analysis. If no impacts are anticipated, please specify “No impact anticipated” in the field.

Examples of Environmental Impacts include but are not limited to:

- Impacts on the emission of greenhouse gases
- Impacts on the discharge of pollutants to water
- Impacts on the arability of land
- Impacts on the climate
- Impacts on the flow of water
- Impacts on recreation
- Or other environmental impacts

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#### 1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

#### 2. ADOPTING AGENCY:

Vermont Public Utility Commission

#### 3. GREENHOUSE GAS: *EXPLAIN HOW THE RULE IMPACTS THE EMISSION OF GREENHOUSE GASES (E.G. TRANSPORTATION OF PEOPLE OR GOODS; BUILDING INFRASTRUCTURE; LAND USE AND DEVELOPMENT, WASTE GENERATION, ETC.):*

The orderly and safe interconnection of distributed energy resources will facilitate the development of renewable energy resources in Vermont. This will reduce greenhouse gas emissions.

#### 4. WATER: *EXPLAIN HOW THE RULE IMPACTS WATER (E.G. DISCHARGE / ELIMINATION OF POLLUTION INTO VERMONT WATERS, THE FLOW OF WATER IN THE STATE, WATER QUALITY ETC.):*

No impact anticipated.



5. **LAND:** *EXPLAIN HOW THE RULE IMPACTS LAND (E.G. IMPACTS ON FORESTRY, AGRICULTURE ETC.):*

No impact anticipated.

6. **RECREATION:** *EXPLAIN HOW THE RULE IMPACTS RECREATION IN THE STATE:*

No impact anticipated.

7. **CLIMATE:** *EXPLAIN HOW THE RULE IMPACTS THE CLIMATE IN THE STATE:*

No impact anticipated.

8. **OTHER:** *EXPLAIN HOW THE RULE IMPACT OTHER ASPECTS OF VERMONT'S ENVIRONMENT:*

No impact anticipated.

9. **SUFFICIENCY:** *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*

The proposed rule will not have an impact on the environment. The construction of energy facilities, which does have the potential for environmental impacts, is governed by 30 V.S.A. Secs. 248 and 8010 and by Commission Rules 5.100 and 5.400.

## Public Input Maximization Plan

### **Instructions:**

Agencies are encouraged to hold hearings as part of their strategy to maximize the involvement of the public in the development of rules. Please complete the form below by describing the agency's strategy for maximizing public input (what it did do, or will do to maximize the involvement of the public).

This form must accompany each filing made during the rulemaking process:

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1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

2. ADOPTING AGENCY:

Vermont Public Utility Commission

3. PLEASE DESCRIBE THE AGENCY'S STRATEGY TO MAXIMIZE PUBLIC INVOLVEMENT IN THE DEVELOPMENT OF THE PROPOSED RULE, LISTING THE STEPS THAT HAVE BEEN OR WILL BE TAKEN TO COMPLY WITH THAT STRATEGY:

On April 15, 2019, the Commission issued an order opening a rulemaking to begin a review of Commission Rule 5.500, the Commission rule that governs the interconnection of electric generation facilities with Vermont's electric distribution system. During the course of this rulemaking proceeding, the Commission circulated two proposed drafts of amendments to Rule 5.500, conducted three workshops, and solicited rounds of written comments on each rule draft and after the workshops. At the workshops, the Commission heard from stakeholders addressing the technical standards for interconnecting distributed energy resources to the grid and the procedures for the utility review and approval of interconnection applications.

The Commission will solicit another round of comments and hold at least one public hearing after filing the proposed rule with the Secretary of State.

4. BEYOND GENERAL ADVERTISEMENTS, PLEASE LIST THE PEOPLE AND ORGANIZATIONS THAT HAVE BEEN OR WILL BE INVOLVED IN THE DEVELOPMENT OF THE PROPOSED RULE:

- Allco Renewable Energy Limited ("Allco")
- AllEarth Renewables, Inc.
- Bristol Electronics
- Efficiency Vermont
- The Interstate Renewable Energy Council, Inc. ("IREC")
- ISO New England, Inc. ("ISO-NE")
- Renewable Energy Vermont ("REV")
- Sunrun Inc
- Vermont Agency of Agriculture, Food, and Markets ("AAFM")
- the Vermont electric distribution utilities
- Vermont Electric Power Company, Inc. ("VELCO")
- Vermont Public Power Supply Authority ("VPPSA")
- Vermonters for a Clean Environment
- John Woodward

## Incorporation by Reference

**THIS FORM IS ONLY REQUIRED WHEN INCORPORATING MATERIALS BY REFERENCE. PLEASE REMOVE PRIOR TO DELIVERY IF IT DOES NOT APPLY TO THIS RULE FILING:**

### **Instructions:**

In completing the incorporation by reference statement, an agency describes any materials that are incorporated into the rule by reference and how to obtain copies.

This form is only required when a rule incorporates materials by referencing another source without reproducing the text within the rule itself (e.g., federal or national standards, or regulations).

Incorporated materials will be maintained and available for inspection by the Agency.

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### 1. TITLE OF RULE FILING:

**Rule 5.500: INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

### 2. ADOPTING AGENCY:

Vermont Public Utility Commission

### 3. DESCRIPTION (*DESCRIBE THE MATERIALS INCORPORATED BY REFERENCE*):

The rule incorporates several national standards for the safe interconnection of electric power systems.

### 4. FORMAL CITATION OF MATERIALS INCORPORATED BY REFERENCE:

IEEE 1547 Series of Standards for Interconnecting Distributed Resources with Electric Power Systems as adopted

5. UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems

6. NFPA 70 National Electrical Code

7. IEEE Standard C37.90.1 IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems
8. IEEE Standard C37.90.2 IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers
9. IEEE Standard C37.108 IEEE Guide for the Protection of Network Transformers
10. IEEE Standard C57.12.44 IEEE Standard Requirements for Secondary Network Protectors
11. IEEE Standard C62.41.2 IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits
12. IEEE Standard C62.45 IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits
13. ANSI C84.1 Electric Power Systems and Equipment - Voltage Ratings (60 Hertz)
14. IEEE Standard 100 IEEE Standard Dictionary of Electrical and Electronic Terms
15. NEMA MG 1 Motors and Small Resources
16. IEEE Standard 519 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems
17. 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
18. 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
19. **OBTAINING COPIES:** *(EXPLAIN WHERE THE PUBLIC MAY OBTAIN THE MATERIAL(S) IN WRITTEN OR ELECTRONIC FORM, AND AT WHAT COST):*



All IEEE standards may be purchased online at:  
<https://ieeexplore.ieee.org/>

The prices are as follows:

IEEE 1547 - \$151

IEEE Standard C37.90.1 - \$107

IEEE Standard C37.90.2 - \$104

IEEE Standard C37.108 - \$62

IEEE Standard C57.12.44 - \$104

IEEE Standard C62.41.2 - \$136

IEEE Standard C62.45 - \$138

IEEE Standard 100 - Free

IEEE Standard 519 - \$56

IEEE Standard 1453 - \$93

IEEE Standard 1453.1-2012 - \$90

UL 1741 is available for purchase at  
<https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=28955> for \$341.

NEMA MG 1 Motors and Small Resources is available at no cost at <https://www.nema.org/standards/view/motors-and-generators>

ANSI C84.1-2020 is available for purchase at  
<https://blog.ansi.org/2020/10/ansi-c84-1-2020-electric-voltage-ratings-60/#gref> for \$148.

NFPA 70 National Electrical Code is available at no cost at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=70>

**20. MODIFICATIONS (PLEASE EXPLAIN ANY MODIFICATION TO THE INCORPORATED MATERIALS E.G., WHETHER ONLY PART OF THE MATERIAL IS ADOPTED AND IF SO, WHICH PART(S) ARE MODIFIED):**

The rule does not contain modifications of the standards described above.

Run Spell Check

# Explanation of the Vermont Public Utility Commission’s changes to the original proposed rule including citations.<sup>1</sup>

The Vermont Public Utility Commission (“Commission”) has made the following changes to the proposed amendments to Commission Rule 5.500, Interconnection Procedures for Proposed Electric Generation Resources and Energy Storage Devices (the “Interconnection Rule”) that were filed with the Secretary of State on June 28, 2023.

## **Rule 5.502(4)**

### *Initial Proposal*

Application Forms – Forms adopted by the Commission for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission from time to time. Application Forms may be submitted electronically to the Interconnecting Utility.

### *Final Proposal*

Application Forms – Forms adopted by the Commission, created in collaboration with the Department of Public Service and Interconnecting Utilities, for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission, in collaboration with the Department of Public Service and Interconnection Utilities, from time to time. Application forms may be submitted electronically or in accordance with the Interconnecting Utilities’ specifications.

## **Rule 5.502(13)**

### *Initial Proposal*

Facilities Study – a study to determine the cost of Interconnection Facilities or System Upgrades that are necessary for interconnection of the Generation Resource Project.

### *Final Proposal*

Facilities Study – any study or studies performed by an Interconnecting Utility or a designated third party to determine the cost of Interconnection Facilities or System Upgrades that are necessary for interconnection of the Project.

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<sup>1</sup> Per the Secretary of State’s Final Proposed Filing Cover Sheet #10.

## **Rule 5.502(15)**

### *Initial Proposal*

Feasibility Study – a study consisting of initial engineering analyses regarding the feasibility of interconnecting the Project.

### *Final Proposal*

Feasibility Study – any study or studies performed by an Interconnecting Utility or a designated third party consisting of initial engineering analyses regarding the feasibility of interconnecting the Project.

## **Rule 5.516(I)**

### *Initial Proposal*

**As Built Drawings.** In the case of Projects with a Nameplate Rating greater than 150 kW, the Interconnection Requester must, within 30 days of the Project in-service date, supply to the Interconnecting Utility “as built” drawings depicting the details of what was installed during the construction process. Such drawings must be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility must be addressed pursuant to the Interconnection Agreement.

### *Final Proposal*

~~As Built Drawings~~ One-Line Diagram. In the case of Projects with a Nameplate Rating greater than 150 kW, the Interconnection Requester must, within 30 days of the Project in-service date, supply to the Interconnecting Utility an “as built” ~~drawings depicting the details~~ one-line diagram of what was installed during the construction process. Such ~~drawings~~ diagrams must be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility must be addressed pursuant to the Interconnection Agreement.

## **Explanation of the Vermont Public Utility Commission’s reasons for accepting or rejecting requested changes to the original proposed rule.<sup>1</sup>**

The Vermont Public Utility Commission (“Commission”) received no substantive arguments against the rule during the public hearing held on August 15, 2023, and received written comments from four entities by the August 23, 2023, comment deadline for the Commission’s proposed amendments to Commission Rule 5.500, the Interconnection Procedures for Proposed Electric Generation Resources and Energy Storage Devices. The Commission received comments from the following entities and individuals:

- AllEarth Renewables, Inc. (“AER”);
- Encore Renewable Energy (“Encore”);
- Renewable Energy Vermont; and
- Vermont Public Power Supply Authority (“VPPSA”)

Below is an explanation of the Commission’s reasons for accepting or rejecting requested changes to the proposed rule contained in those public comments. The explanation discusses the comments generally as well as those filed in response to specific sections of the rule and explains the Commission’s reasons for either accepting or rejecting the comments and any changes made to each section in the proposed rule as a result.

### **Rule 5.501 – Applicability**

#### *Summary of Proposed Rule*

The Commission has revised Rule 5.500 generally to incorporate the procedures for reviewing the interconnection of net-metering systems and energy storage devices. Consistent with the Commission’s statutory authority and general duty to ensure the safety and reliability of the electric system, the Commission also retains the authority to adopt additional requirements for proposed interconnections by order pursuant to Public Act No. 61. § 7 (2006 Vt., Adj. Sess.).

#### *Comments*

##### **VPPSA**

VPPSA comments that the language included within 5.501(B) is overly broad and does not establish any formal rulemaking or public engagement requirements to guide the Commission when imposing further requirements for interconnection projects or procedures.

#### *Response*

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<sup>1</sup> Per 3 V.S.A. § 841(b).



Public Act No. 61, § 7 (2006 Vt., Adj. Sess.) authorizes the Commission to adopt interconnection requirements “by rule or order.” The Commission’s general jurisdiction under 30 V.S.A. § 209(a) permits that:

On due notice, the Commission shall have jurisdiction to hear, determine, render judgment, and make orders and decrees in all matters provided for in the charter or articles of any corporation owning or operating any plant, line, or property subject to supervision under this chapter, and shall have like jurisdiction in all matters respecting:

...  
(3) the manner of operating and conducting any business subject to supervision under this chapter, so as to be reasonable and expedient, and to promote the safety, convenience, and accommodation of the public;

...  
(5) the sufficiency and maintenance of proper systems, plants, conduits, appliances, wires, and exchanges, and when the public safety and welfare require the location of such wires or any portion thereof underground[.]

The Commission’s authority and jurisdiction are necessarily broad to ensure that the safety and reliability of the electric system ~~is~~ are maintained. The Commission is required by statute to provide “due notice” before issuing orders directing the interconnecting utilities to implement any additional standards. VPPSA’s members will be given notice of and permitted an opportunity to participate in the development of any additional interconnection requirements ordered pursuant to Rule 5.501(B).

**Rules 5.502(3) and (36) – Definitions of Application Fee and Pre-Application Fee**

*Summary of Proposed Rule*

Rules 5.502(3) and (36) establish an application fee and pre-application fee. The rules establish default amounts of \$600 for applications and \$300 for pre-applications. An interconnecting utility may propose for Commission approval an alternative fee amount by filing a tariff pursuant to 30 V.S.A. § 225.

Projects with a capacity of less than or equal to 150 kW are not required to pay an application fee. However, an interconnecting utility may propose to charge an application fee to projects with a capacity of less than or equal to 150 kW by filing a tariff pursuant to 30 V.S.A. § 225.

*Comments*

**VPPSA**

VPPSA asserts that “the proposed revisions under this 5.502(3) could result in significant cost shifting to ratepayers unable to access interconnection projects and ultimately cause compounding costs for interconnecting utilities and their ability to assess or analyze grid impacts from an increasingly distributed though interconnected energy system.” VPPSA represents that the majority of projects proposed in its members’

service territories are smaller than 150 kW, meaning that the utilities will not collect substantial fee revenue under the proposed rule.

*Response*

The Commission understands VPPSA’s concern that the costs of reviewing interconnection applications could be inappropriately shifted to ratepayers who are not using generation resources or energy storage devices. That is why the rule permits VPPSA’s members to propose a cost-based tariff to recover the costs of reviewing interconnection applications, including those for small projects, through an application fee and pre-application fee. A utility’s cost to review interconnection applications can vary considerably depending on the utility’s structure, such as whether the utility has a dedicated engineering department for reviewing applications or whether the utility must contract with a third party to perform the review. Therefore, the rule gives utilities the flexibility to set fee amounts that reflect their actual costs and that differ from the default application fee and pre-application fee established in the rule.

**Rule 5.502(4) – Definition of Application Forms**

*Summary of Proposed Rule*

Rule 5.502(4) defines the term “Application Forms” as:

forms adopted by the Commission for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission from time to time. Application Forms may be submitted electronically to the Interconnecting Utility.

*Comments*

**VPPSA**

VPPSA recommends that this definition be revised to provide that the application forms will be developed in collaboration with the Department of Public Service and the interconnecting utilities.

*Response*

The Commission agrees with this comment and has revised Rule 5.502(4) to state:

Application Forms – Forms adopted by the Commission, created in collaboration with the Department of Public Service and Interconnecting Utilities, for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission, in collaboration with the Department of Public Service and Interconnection Utilities, from time to time. Application forms may be submitted electronically or in accordance with the Interconnecting Utilities’ specifications.

**Rules 5.502(13), (26), and (47) – Definitions of Interconnection Facilities, Facilities Study, and System Impact Study**

*Summary of Proposed Rule*

Rule 5.502 contains definitions of terms used in the rule, including the terms “Interconnection Facilities,” “Facilities Study,” and “System Impact Study.”

*Comments*

**VPPSA**

VPPSA asserts that the definition of “Interconnection Facilities” under proposed Rules 5.100 (the net-metering rule) and Rule 5.503 are inconsistent. VPPSA also states that there are inconsistencies in the definitions of a “Facilities Study” and a “System Impact Study” within Rule 5.503. VPPSA did not describe how these definitions are inconsistent with each other.

*Response*

The Commission has reviewed the definition of Interconnection Facilities in the proposed rule, and it is identical to the definition of the same term used in the proposed revisions to the net-metering rule that have been filed with the Secretary of State in Rulemaking #P23-019. Therefore, the Commission has not made any changes to the proposed rule in response to this comment.

The Commission has reviewed the definitions of “Facilities Study” and “System Impact Study” in the proposed rule and has made minor technical corrections to ensure that consistent language is used in both definitions. While VPPSA did not describe the inconsistencies referenced in its comments, the Commission assumes that VPPSA is referring to the fact that the definition of “System Impact Study” states that a study may be “performed by an Interconnecting Utility or a designated third party” while the definition of “Facilities Study” does not describe the entities that would perform such a study. The Commission notes that this technical inconsistency exists in the current interconnection rule and has not, to the Commission’s knowledge, caused any issues over the several years the rule has been in effect.

However, in order to ensure consistency in the rule, the Commission has revised Rule 5.503(13) to state:

Facilities Study – any study or studies performed by an Interconnecting Utility or a designated third party to determine the cost of Interconnection Facilities or System Upgrades that are necessary for interconnection of the Generation Resource Project.

The Commission has made a similar revision to the definition of “Feasibility Study” in Rule 5.103(15).



## **Rule 5.502(20) – Definition of Good Utility Practice**

### *Summary of Proposed Rule*

The proposed rule defines “Good Utility Practice” as:

any of the practices, methods, and acts engaged in or approved by a significant portion of the electric industry operating a comparable electric 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.

### *Comments*

VPPSA criticizes this definition as “ethereal” and “encumbered with legalese.” VPPSA asserts that the proposed definition is “overly restrictive and could ultimately have the unintended consequences of restricting the diversity of solutions that may be employed to meet the growing needs of a dispersed and sophisticated modern grid.” VPPSA proposes an alternative term, “Generally Acceptable Industry Standards.”

### *Response*

The definition contained in the proposed rule is the same definition of “Good Utility Practice” that is used by ISO-NE. While ISO-NE’s standard is not necessarily binding on the Commission in this context, VPPSA has not persuasively described the alleged shortcomings of ISO-NE’s definition or demonstrated that VPPSA’s preferred standard is superior. Therefore, the Commission has not revised the rule in response to this comment.

## **Rule 5.504 – Group and Serial Studies**

### *Summary of Proposed Rule*

Generally, interconnection applications are studied in the order they are received. In circumstances where the number and timing of applications ~~is~~ are such that the applications will directly affect each other, the interconnecting utility may put an application on hold until the review of earlier-filed applications is completed.

The proposed rule permits, but does not require, a utility to propose for Commission approval a tariff containing standards and procedures for “group studies,” meaning that a group of applications may be studied together. The tariff must address the timing, geographic scope, and requirements for participating in a group study. The tariff must also contain rules for conducting group studies, cost allocation, and other subjects necessary to ensure that the group study process is fair and transparent.

### *Comments*

REV commented that the rule allows utilities to develop group and serial study processes within tariff cases and that these procedures could have a significant effect on project timelines. REV requests that the Commission notify REV and the Interstate Renewable Energy Council of any tariff case that includes these provisions.

### *Response*

The Commission may direct a utility proposing a tariff to provide notice of its proposal to “parties affected by such [tariff] as the Commission shall direct.”<sup>2</sup> The Commission will direct utilities to provide appropriate notice of all proposed tariffs, depending on the scope of the tariff proposed.

## **Rule 5.516(B) – Interconnection Agreements**

### *Summary of Proposed Rule*

This rule establishes the procedures for the execution of interconnection agreements between the interconnecting utility and certain projects.

### *Comments*

Encore contends that renewable energy development and the public good would be served by extending the period for an interconnection agreement to be executed and the resulting project energized without loss of the interconnection agreement. Encore recommends extending the period for an agreement to be executed and the project energized to 18 months. Encore states that this would balance accommodating the volatility in the renewable supply chain that has been seen in recent years against the need to prevent failed or heavily delayed projects from blocking projects that are later in the interconnection queue.

### *Response*

No provision of Rule 5.500 requires that a project be commissioned within a certain timeframe after the execution of an interconnection agreement. It is the Commission’s understanding that interconnection agreements include default timeframes for commissioning a project. This is not a rule-based requirement but instead is a term of the interconnection agreement that is subject to negotiation between the utility and the project.<sup>3</sup>

The Commission does not find good cause to amend Rule 5.516 to require that projects be commissioned within 18 months after the execution of an interconnection agreement. Net-metering facilities have commissioning deadlines set by the net-metering

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<sup>2</sup> 30 V.S.A. § 225.

<sup>3</sup> See *Vermont Public Utility Commission Orders and Memoranda Issued in Response to COVID-19 Pandemic- Comments on Waiver of Rule 5.508(B) For Certain Execution Deadlines*, Case No. 20-0789-INV, Letter from Carolyn Browne Anderson, on behalf of Green Mountain Power, to Judith Whiney, Clerk of the Commission dated July 9, 2020 at 2 (“Because the project commissioning deadline is prescribed in the [interconnection agreement] between the utility and the interconnector, the parties . . . can agree to extend the commissioning deadline [without Commission approval].”)

rule.<sup>4</sup> Other facilities, such as standard-offer projects, have commissioning milestones established by statute. Establishing another commissioning deadline in the interconnection rule risks conflicting standards. The Commission expects that utilities will include reasonable timeframes in their interconnection agreements that do not conflict with commissioning milestones established by rule or statute.

### **Rule 5.516(I) – Terms Applicable to All Interconnection Applications**

#### *Summary of Proposed Rule*

Rule 5.516(I) requires projects with a nameplate rating greater than 150 kW to provide the Interconnecting Utility with “as built” drawings depicting the details of what was installed during the construction process. Such drawings must be stamped by a professional engineer. Any deviation from the application not previously approved by the interconnecting utility must be addressed pursuant to the interconnection agreement.

#### *Comments*

##### **REV and Encore**

These entities oppose the inclusion of a new requirement to deliver an as-built drawing after a project is completed. These comments assert that similar requirements were considered and ultimately rejected in case 21-0861-RULE, the rule governing Section 248 petitions. In the alternative, REV recommends replacing the word “drawings” with the word “diagrams” because if ~~post-post~~-construction documentation is required, it should be consistent with the materials supplied in the interconnection application process.

#### *Response*

The Commission agrees with REV that the information submitted after a project is interconnected should be consistent with the information submitted with the initial interconnection request. Accordingly, the Commission has revised Rule 5.516(I) to state:

~~As-Built Drawings~~ One-One-Line Diagram. In the case of Projects with a Nameplate Rating greater than 150 kW, the Interconnection Requester must, within 30 days of the Project in-service date, supply to the Interconnecting Utility an “as built” drawings depicting the details one-line diagram of what was installed during the construction process. Such ~~drawings~~ diagrams must be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility must be addressed pursuant to the Interconnection Agreement.

The Commission continues to believe that it is reasonable to require the proponents of larger projects to provide as-built diagrams to the utility so that the interconnecting utility ~~may~~ can confirm that projects are installed consistent with their approved plans. The Commission finds this requirement to be reasonable because project proponents must prepare one-line diagrams as part of their application. No participant

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<sup>4</sup> The current commissioning deadline is one year. However, the Commission has proposed to amend its rules to allow two years.

has demonstrated that it is an unreasonable burden for applicants to update these diagrams to reflect what is installed or to provide a confirmation that the project has been installed consistent with the approved diagrams.

### **Rule 5.520 – Codes and Standards**

#### *Summary of Proposed Rule*

Rule 5.520 identifies the applicable national codes and standards that apply to the review of proposed interconnections. Applications that are received by the utility 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 received later than six months after the revision date must follow the revised standard.

#### *Comments*

##### **AllEarth Renewables**

AER requests that the Commission revise Rule 5.520 to allow substantially longer than six months for compliance with revised codes and standards. AER contends that post-pandemic ~~supply-supply~~-chain issues remain very real and that small Vermont entities, including utilities and renewable energy project developers, are not likely to be at the top of vendor priority lists. AER states that a two-year implementation period, with an appropriate procedure for consideration of a shorter window in specific emergency situations, affords a more realistic approach.

#### *Response*

The rule includes a six-month transition period before interconnection requests are subject to a revised national code or standard. This six-month transition period has been a feature of the interconnection rule since at least 2006. No other comments on the proposed rule stated that the six-month period is insufficient due to ~~supply-supply~~-chain issues, and therefore, the Commission is not persuaded that a longer transition period is necessary.

### **Rule 5.522 – Limited Export and Non-Exporting Projects**

#### *Summary of Proposed Rule*

Traditionally, a project's interconnection is studied using its rated maximum capacity. The proposed rule recognizes that some technologies, such as energy storage devices, allow projects to limit the amount of power exported to the system and reduce potential impacts on the grid. Rule 5.522 allows a utility to study a project at a limited export capacity (as opposed to the theoretical maximum capacity), provided that the export capacity is limited using methods approved in the rule or mutually agreeable to the interconnecting utility and applicant.

#### *Comments*

REV and Encore state that while the Commission is to be lauded for incorporating new language around project export capacity, there are multiple ways to not only limit



how much energy is sent to the grid, but to shape generation profiles over time. REV states that strategic curtailment and energy storage can significantly change a project's potential impact on grid infrastructure. REV encourages the Commission not just to look ~~not just~~ at the maximum export capacity but also to require that utilities consider whether a project proposes to control injection timing. According to REV, this would promote the more cost-effective integration of renewable resources.

#### *Response*

The Commission believes that the proposed rule gives the utilities flexibility to consider the timing of energy delivery when evaluating projects. Specifically, Rule 5.522, which describes acceptable methods of limiting exports, includes the following (emphasis added):

If a Project uses any configuration or operating mode listed below to limit the export of electrical power across the Point of Interconnection, then the Export Capacity is only the amount capable of being exported (not including any Inadvertent Export). To prevent impacts on system safety and reliability, any Inadvertent Export from a Project must comply with the limits in paragraphs (5) or (6), below. The Export Capacity specified in the Application will subsequently be included as a limitation in the Interconnection Agreement. Other means not listed in this section may be used to limit export if mutually agreed upon by the Interconnecting Utility and Applicant.

...

(7) Limited Export Using Mutually Agreed-Upon Means: *Projects may be designed with other control systems and/or protective functions to limit export and Inadvertent Export to levels mutually agreed upon by the Interconnection Requester and the Interconnecting Utility.* The limits may be based on technical limitations of the Interconnection Requester's equipment or the electric delivery system equipment. To ensure Inadvertent Export remains within mutually agreed-upon limits, the Interconnection Requester must use an internal transfer relay, energy management system, or other customer facility hardware or software. *This can also include the utilization of a paired system such as solar and storage to limit the maximum AC output from the site at any given time through charging of the Energy Storage Device at key times.*

This language allows utilities to consider strategic curtailment, on terms mutually acceptable to the project and utility, that will facilitate the interconnection of projects using storage or other technologies that can control a project's delivery of energy to the grid. The Commission acknowledges that the term "export capacity" used in the rule is the maximum amount of energy that will be exported across the point of interconnection at any time, even when a project can reduce its output at strategic times. However, the Commission does not read the interconnection rule so rigidly as to prohibit projects from

being studied with an export capacity that varies over time, provided that the utility is satisfied that export capacity can in fact be limited using the methods provided in Rule 5.522. Even though a project has the technical ability to limit its export at certain times, it is necessary that the interconnecting utility has assurances that the project can and will actually do so under specific conditions. Therefore, the rule identifies accepted methods of limiting export and also gives the utility flexibility to approve other methods, provided that the utility and project find them mutually acceptable.

STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

CASE NO. 19-0856-RULE

PROPOSED REVISIONS TO VERMONT PUBLIC  
UTILITY COMMISSION RULE 5.500

August 15, 2023  
1 p.m.

---  
Via videoconference

Public Hearing held before the  
Vermont Public Utility Commission, via GoToMeeting, on  
August 15, 2023, beginning at 1 p.m.

P R E S E N T

HEARING OFFICER: Jake Marren, Deputy General Counsel

STAFF: Mary Jo Krolewski, Utilities  
Analyst  
John Cotter, Deputy General Counsel

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Page

Mark Sciarrotta-----6  
Mary Gorman-----7

1 MR. MARREN: Good afternoon. And thank  
2 you for being here. This is a Vermont Public Utility  
3 Commission public hearing in Case No. 19-0856-RULE,  
4 regarding proposed revisions to Vermont Public  
5 Utility Commission Rule 5.500, the interconnection  
6 rule.

7 My name is Jake Marren. I'm a Deputy  
8 General Counsel at the Vermont Public Utility  
9 Commission. With me today is Mary Jo Krolewski,  
10 Utilities Analyst. And John Cotter, also a Deputy  
11 General Counsel at the commission.

12 The purpose of today's hearing is to  
13 provide an opportunity to hear input from the public  
14 regarding this rulemaking. The comments received at  
15 this hearing will become part of the public record in  
16 this case. You can also provide written comments  
17 using the commission's online document management  
18 system, ePUC, or by direct mail or email to the clerk  
19 of the commission. You may comment in ePUC without  
20 establishing a log-in. Please file all comments by  
21 the deadline of August 22, 2023. Contact information  
22 is provided on the commission's website [www.puc.vermont.gov](http://www.puc.vermont.gov).

23  
24 You can also subscribe to this case in  
25 ePUC which means you will receive an email

1 notification of any commission-issued document or any  
2 filing made by a participant in this case. More  
3 information about how to participate in commission  
4 proceedings is available in the public participation  
5 section of the commission's website.

6 Today's hearing will be transcribed by  
7 a court reporter. This transcript, along with all  
8 other comments received by the commission, become  
9 part of the case's public file so the commission  
10 members, staff, and participants in this case can  
11 consider the comments. The transcript will be  
12 available in ePUC which is accessible directly online  
13 at <https://ePUC.Vermont.gov>, or from links on the  
14 commission's website. If a participant or member of  
15 the public intends to record the public hearing via  
16 video or audio, please indicate this when you provide  
17 your name to the court reporter.

18 Public comments can be helpful in  
19 raising new issues or perspectives that the  
20 commission should consider. We look forward to  
21 hearing from your input.

22 Today's public hearing is being  
23 conducted remotely. We are using the web-based  
24 platform GoToMeeting. Anyone who anticipates  
25 speaking during the public hearing should keep their

1 cameras on until they have provided their public  
2 comments. It's very helpful for us to see you when  
3 you are speaking.

4 I will not mute anyone's microphone  
5 during this hearing. This means that you should keep  
6 yourself on mute unless you are speaking. That way  
7 we can minimize background noises which can be  
8 disruptive. I will ask each member of the public  
9 whose camera is on at the time if they would like to  
10 speak. I will also ask whether anyone participating  
11 by phone wishes to speak. It is very important that  
12 we avoid talking over one another.

13 Each time you begin speaking, please  
14 identify yourself by name for the court reporter and  
15 spell your name. If your internet connection cuts  
16 out, please try to rejoin GoToMeeting or call into  
17 the public hearing using the GoToMeeting telephone  
18 number that was provided in the public hearing  
19 notice.

20 If at any point any of you become aware  
21 that another participant or member of the public is  
22 having trouble accessing the video or audio feeds of  
23 this remote public hearing, please let me know  
24 immediately, and I will pause the public hearing, and  
25 we will try to resolve the issue.



1 Does anyone have any questions or  
2 concerns before we begin?

3 (No response)

4 MR. MARREN: All right. I don't see  
5 anyone's camera turned on just yet other than the  
6 commission staff. If anyone would like to give  
7 public comment at this time, please turn on your  
8 camera. Otherwise, I will turn to our phone call --  
9 our telephone participants.

10 (No response)

11 MR. MARREN: There are two participants  
12 today who have called in, so I can't see either of  
13 you. If you would like to speak, now is your  
14 opportunity. Just state your name and we will take  
15 your comment.

16 (No response)

17 MR. MARREN: And I'm interpreting the  
18 silence --

19 MR. SCIARROTTA: Thank you, Mr. Marren.  
20 This is Mark Sciarrotta, General Counsel at VELCO.  
21 I don't have any specific -- Mark S-C-I-A-R-R-O-T-T  
22 -A. I don't have any additional comments in addition  
23 to what we have already submitted in the informal  
24 rulemaking process, but I wanted to thank you and the  
25 rest of the commission for all of the changes you

1 have made in improving the rule. Thanks.

2 MR. MARREN: Thank you, Mr. Sciarrotta.  
3 I'm interpreting the silence from the rest of you  
4 to mean that you'll be submitting written comments on  
5 the 22nd or before then.

6 Given that no one else has spoken at  
7 this point, I'm just going to stay on the -- in the  
8 meeting for another 5 to 10 minutes; make sure no one  
9 else joins. But if no one else comes to speak, then  
10 we will be adjourned after that.

11 So I'm going to turn my camera off and  
12 just wait and see if anyone else joins the hearing,  
13 and I'll check back in about 10 minutes. Thank you.

14 (Recess was taken.)

15 MR. MARREN: Hi, Ms. Gorman. If you're  
16 just joining this public hearing, we had begun at 1  
17 o'clock, and I was just waiting around to see if  
18 there were any additional folks who would like to  
19 speak. Would you like to give a comment in today's  
20 hearing?

21 MS. GORMAN: Sorry. Yes, I would.  
22 Thank you.

23 MR. MARREN: Oh, wonderful. You may  
24 speak at any time. If you would just state your name  
25 for the court reporter and go.

1 MS. GORMAN: Is it right now?

2 MR. MARREN: Yes, please.

3 MS. GORMAN: Okay. I need a second.

4 Thank you.

5 MR. MARREN: Of course. Yeah.

6 MS. GORMAN: So is this the meeting  
7 right now?

8 MR. MARREN: Yes. It began at 1. We  
9 were just waiting for anyone who joined later to  
10 speak. So --

11 MS. GORMAN: Is the meeting not  
12 something where you listen to what other people are  
13 saying? Or has everyone already left?

14 MR. MARREN: Everyone who wanted to  
15 speak has already spoken.

16 MS. GORMAN: Okay. Hold on a sec. So  
17 no other meeting going on. That's it.

18 MR. MARREN: Yes. We are just taking  
19 public comments from anyone who would like to address  
20 the interconnection rule.

21 MS. GORMAN: Okay. Hold on a second  
22 then. Thank you.

23 (Pause)

24 MS. GORMAN: Sorry. Let's see. Hi  
25 there. I guess you don't let cameras --

1 MR. MARREN: You may turn on your  
2 camera if you would like to.

3 MS. GORMAN: I'm not used to this --  
4 this is -- maybe this is the way to do it.

5 MR. MARREN: There should be a little  
6 icon in the center of your tool bar that has a little  
7 movie camera on it. If there is a line through it,  
8 it means your camera is turned off.

9 MS. GORMAN: Hi there.

10 MR. MARREN: Hi. Nice to see you.

11 MS. GORMAN: Good to see you. I have  
12 been seeing you. So look it. I just want to say  
13 that I think that absolutely that we need to be -- to  
14 really consider the clearing, to really limit the  
15 clearing to no more than three acres, if even that.  
16 But that that is going to be absolutely essential.  
17 We are seeing too many -- too much forest cut down.  
18 And it's counter productive to the importance of the  
19 forest rule in carbon sequestration as well as the  
20 lives of animals and the lives of people.

21 I also think that requiring the  
22 applicants, the companies that are doing -- proposing  
23 to build solar, I think they need to have their plans  
24 set before they get their permissions from the towns  
25 and the regional planning groups and go to the state.

1 I think we have seen enough situations where that has  
2 not been the case, and there's been too much change,  
3 too much change.

4 And so I want to be very clear that I  
5 think we are delighted to see these rules so that the  
6 solar that the state feels it needs gets sited  
7 appropriately and respects the importance of forests.  
8 That's my comment.

9 MR. MARREN: All right. Thank you, Ms.  
10 Gorman. And I believe your comments are directed at  
11 the net-metering rule.

12 MS. GORMAN: Correct.

13 MR. MARREN: Okay. All right.

14 MS. GORMAN: Yes. I thought that was  
15 the one that we were talking about.

16 MR. MARREN: Today's hearing is about a  
17 very closely related subject, the interconnection  
18 rule, which is the process where the utility reviews  
19 the proposed plant to make sure that it won't affect  
20 their system. But I'm going to take your comments.  
21 I've got them transcribed by the court reporter. I'm  
22 going to put them in the record for the net-metering  
23 rule. So it's no problem that you delivered them  
24 here today.

25 MS. GORMAN: Thank you. I appreciate

1 that. Okay. Thank you very much.

2 MR. MARREN: Thank you, Ms. Gorman.

3 All right. Well it's 1:23, and unless there is  
4 anyone else who would like to give a comment today, I  
5 think we will adjourn shortly.

6 Is there anything else that folks would  
7 like to say?

8 (No response)

9 MR. MARREN: All right. Well thank you  
10 very much everyone. The commission appreciates your  
11 comments and concerns.

12 And as a reminder, the deadline for  
13 filing public comments in this matter is August 22,  
14 2023. We are adjourned. Have a good day.

15 (Whereupon, the proceeding was  
16 adjourned at 1:24 p.m.)

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C E R T I F I C A T E

1  
2  
3 I, Kim U. Sears, do hereby certify that I  
4 recorded by stenographic means the Public Hearing re:  
5 Case No. 19-0856-RULE, via videoconference, on August 15,  
6 2023, beginning at 1 p.m.

7 I further certify that the foregoing  
8 testimony was taken by me stenographically and thereafter  
9 reduced to typewriting and the foregoing 11 pages are a  
10 transcript of the stenograph notes taken by me of the  
11 evidence and the proceedings to the best of my ability.

12 I further certify that I am not related to  
13 any of the parties thereto or their counsel, and I am in  
14 no way interested in the outcome of said cause.

15 Dated at Williston, Vermont, this 16th day  
16 of August, 2023.

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**STATE OF VERMONT  
PUBLIC UTILITY COMMISSION**

Case No. 19-0856-RULE

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Proposed revisions to Vermont Public Utility  
Commission Rule 5.500

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**COMMENTS OF ALLEARTH RENEWABLES, INC.**

AllEarth Renewables, Inc. (“AER”) submits these comments in accordance with the schedule adopted by the Commission in its Memorandum of June 26, 2023 in this matter. AER reaffirms its prior comments, and would again request that the Commission revise section 5.520 of its proposed Rule to allow substantially longer than six months for compliance with revised standards. While the Commission’s Order of May 18, 2023 discusses the IREC and GMP concerns regarding the six month period, it does not address the fundamental supply chain issues raised by AER in its comments of February 11, 2022.<sup>1</sup> These post-pandemic supply chain issues remain very real ones, and small Vermont entities- whether utilities or renewable energy project developers- are not likely to be at the top of vendor priority lists as a matter of commercial reality. Incorporation of a two-year implementation period, with an appropriate procedure for consideration of a shorter window in specific emergency situations, affords a more realistic approach.

Thank you for the Commission’s consideration of these comments.

Dated this 22nd day of August, 2023.

AllEarth Renewables, Inc.

By: */s/ David Mullett*

David Mullett, General Counsel  
AllEarth Renewables, Inc.  
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802-872-9600  
[dmullett@allearthrenewables.com](mailto:dmullett@allearthrenewables.com)

*This document filed via ePUC*

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<sup>1</sup> Order of 05-18-2023 at 17-18.





August 22<sup>st</sup>, 2023

Ms. Holly Anderson, Clerk  
Vermont Public Utility Commission  
112 State Street, 4<sup>th</sup> Floor  
Montpelier, VT 05602

*Re: Comments on Proposed Rule 5.500 (Case No. 19-0856-RULE)*

Dear Clerk Anderson,

After reviewing proposed Rule 5.500 issued by the Commission on May 4th, Encore Renewable Energy would like to suggest several modifications to the proposed rule. Specifically, we believe the Rule would better serve the public interest by more widely recognizing the implication of export flexibility from sources such as storage and planned curtailment, extending the period for over which an Interconnection Agreement can be executed and a project energized, and eliminating new language requiring “as built drawings” be submitted to the Interconnecting Utility.

As Renewable Energy Vermont (REV) has articulated, there are multiple ways to limit and shape when energy is sent to the grid, including energy storage and curtailment, that can significantly change a project’s potential impact on grid infrastructure. While the Commission is to be lauded for incorporating new language around project export capacity to begin to capture these mechanics, a broader approach that looked not just at the maximum export capacity but also the timing of energy export would lay the foundation for more cost-effective integration of renewable resources that supported reliability and lower overall system costs.

Additionally, we believe that renewable development and the public good would be served by extending the period for an Interconnection Agreement to be executed and the resulting project energized without loss of the Interconnection Agreement. An Interconnection Agreement must currently be executed within one year and the project energized within one year thereafter. Extending the period for an agreement to be executed and/or the project energized to 18 months would balance accommodating the volatility in the renewable supply chain that has been seen in recent years against the need to prevent failed or heavily delayed projects from blocking projects that are later in the interconnection queue.

Finally, Encore Renewable Energy opposes the inclusion of a new requirement to deliver “as built drawing” after a project is completed (5.516(I)). Similar requirements were considered and ultimately rejected in case 21-0861-RULE. Material changes to projects



must be approved by and documented for the Commission and it is unclear what additional benefit is provided by requiring such drawings.

Thank you for the opportunity to share our concerns around this proposed rule change.

Sincerely,

A handwritten signature in blue ink that reads "Jake Clark". The signature is written in a cursive, flowing style.

Jake Clark  
VP of Development  
Encore Renewable Energy



August 22<sup>nd</sup>, 2023

Ms. Holly Anderson, Clerk  
Vermont Public Utility Commission  
112 State Street, 4<sup>th</sup> Floor  
Montpelier, VT 05602

**Re: PUC Proposed Rule 5.500 Revisions (Case No. 19-0856-RULE)**

Dear Clerk Anderson,

Renewable Energy Vermont (REV) is grateful for the opportunity to provide comments to the Commission regarding the proposed changes to Rule 5.500 released on May 4<sup>th</sup>, 2023. REV appreciates the extensive work that the Commission has devoted to updating and improving the Rule. REV members report, for example, that the elimination of the Fast Track screening step in favor of a waivable Preliminary Review and the incorporation of new language recognizing the divergence between nameplate capacity and export capacity are changes that will make the interconnection process faster, more efficient, and more effective at integrating much needed renewable generation and storage. REV does see opportunities for additional improvements in the Rule by more widely recognizing the implications of export flexibility from sources such as storage and planned curtailment, extending the period for over which an Interconnection Agreement can be executed and a project energized, and eliminating new language requiring "as built drawings" be submitted to the Interconnecting Utility.

While the Commission is to be lauded for incorporating new language around project export capacity, there are multiple ways to not only limit how much energy is sent to the grid but to shape generation profiles to facilitate interconnection. These include strategic curtailment as well as energy storage, and can significantly change a project's potential impact on grid infrastructure. We would encourage the Commission to look not just at the maximum export capacity but also to require that utilities look at the timing that energy from a project is injected into the grid if the project propose to control injection timing. A broader perspective here would lay the foundation for a more cost-effective integration of renewable resources that supported reliability and lower overall system costs.

Additionally, we believe that renewable development and the public good would be served by extending the period for an Interconnection Agreement to be executed and the resulting project energized without loss of the Interconnection Agreement. An Interconnection Agreement must currently be executed within one year and the project energized within one year thereafter. Extending the period for an agreement to be executed and/or the project energized to 18 months would balance accommodating the volatility in the renewable supply chain that has been seen in recent years against the need to prevent failed or heavily delayed projects from blocking projects that are later in the interconnection queue.

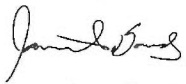
REV opposes the inclusion of a new requirement to deliver "as built drawing" after a project is completed (5.516(I)). Similar requirements were raised in the Commission Order dated 6/16/2022 in Case 21-0861-RULE but opposed by both the development community and the utilities (see e.g. Vermont Electric Coops 6/22/2022 Comments in that case) and the provisions were ultimately not included in Rule 5.400. As REV stated in that case, material changes to projects must be approved by and documented for the Commission and it is unclear what additional benefit is provided by requiring such drawings after the project has been completed and

material changes documented. REV strongly recommends striking these provisions in their entirety. If the Commission rejects this suggestion, then REV recommends replacing the word “drawings” with the word “diagrams.” In the interconnection application, utilities receive single-line (also called one-line) diagrams, not full construction plansets. If post construction documentation is required it should be consistent with the materials supplied in the application process.

Finally, give the latitude that 5.504 leaves for utilities to develop group and serial study process within tariff cases and the significant impact these procedure could have on project timelines, REV requests that the Commission notify all parties in the case – and especially REV and the Interstate Renewable Energy Council – of any tariff case that includes these provisions.

Thank you for the opportunity to comment.

Sincerely,



Jonathan Dowds

Deputy Director



**Via ePUC**

August 22, 2023

Ms. Holly Anderson, Clerk  
Vermont Public Utility Commission  
112 State Street, 4<sup>th</sup> Floor  
Montpelier, VT 05620-2071

**VPPSA Comments**  
**Case No. 19-0856-RULE**  
**Proposed Revisions to Vermont Public Utility Commission**  
**Rule 5.500**

On June 23, 2023, the Vermont Public Utility Commission (“Commission”) filed the necessary documents pursuant to 3 V.S.A. § 838 with the Interagency Committee on Administrative Rules to revise Rule 5.500. The proposed revisions seek to update guidelines that govern Interconnection Procedures for Proposed Generation Resources and the Rule revisions propose to also include interconnection procedures for Energy Storage Devices. The Vermont Public Power Supply Authority (“VPPSA”) has participated in the Commission’s informal rulemaking process and uses this opportunity to raise specific concerns around the proposed rule filed June 26, 2023 in ePUC.<sup>1</sup>

VPPSA, as an instrumentality of the State of Vermont, has a mission to support and advance the interests of its eleven (11) municipally owned electric distribution

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<sup>1</sup> See Proposed Rule Redline in Case No. 19-0856-RULE, filed June 26, 2023.

utilities, including the customers and communities they serve.<sup>2</sup> In aggregate, VPPSA's member utilities serve approximately 30,000 customers in over 50 communities across Vermont in some of the most economically underprivileged and rural areas in the state, including several federally recognized Disadvantaged Communities through the U.S. Council on Environmental Equity's Climate and Economic Justice Screening Tool (CEJST).<sup>3</sup>

VPPSA's relationship with its members creates a clear and distinct delineation between distribution system operations and the energy services, "back-office" support, wholesale energy market procurement and representation, or other joint services offered through the Authority. Therefore, specific interconnection processes and procedures are managed directly by and through the interconnecting utility and project applicant. Over the last several years, VPPSA has engaged in the development of and deployment of centralized grant proposals and grant awards management to reduce barriers and ratepayer borne costs to implement more emergent technologies - particularly around small- and utility-scale battery energy storage systems (BESS). Through centralized efforts with local control and autonomy, VPPSA assists its members in mitigating unnecessary costs while also advancing members' positions in

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<sup>2</sup> VPPSA Member Utilities include Barton Village; Village of Enosburg Falls; Hardwick Electric Department; Village of Jacksonville; Village of Johnson; Ludlow Electric Light Department; Lyndonville Electric Department; Morrisville Water & Light; Northfield Electric Department; Village of Orleans; and Swanton Village.

<sup>3</sup> See [Climate and Economic Justice Screening Tool](#) published Nov. 22, 2022.

the regional energy markets. Further, the interplay and overlap of VPPSA's centralization of DER installation reporting requirements to the Vermont Department of Public Service and regional grid operator, ISO-New England create a significant interplay between Interconnecting Utility and Regional Market/Regulatory Compliance Reporting roles and responsibilities.<sup>4</sup>

As also noted in VPPSA's response under Case No. 19-0855-RULE<sup>5</sup>, before addressing some specific comments on the proposed revisions to Rule 5.500, VPPSA would like to raise some overall observations and concerns around the rapidly changing landscape as grid modernization and electrification exponentially grows in-step with the Renewable Energy Standard, Global Warming Solutions Act, and anticipated Clean Heat Standard requirements. As noted in the Commission's May 18, 2023 Order Responding to Participant Comments, there are a number of interdependencies between Rule 5.100 governing Net Metering and Rule 5.500 on Interconnection Procedures, under which energy storage has also been included during the informal rulemaking process.<sup>6</sup> VPPSA finds these interdependencies to be incredibly nuanced and recommends the formal rulemaking proceeding allow ample opportunity for stakeholders to assess those impacts with full analysis. For one example, it appears that the definition of "Interconnection Facilities" under proposed

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<sup>4</sup> For example, the Vermont Department of Public Service Annual DER Survey, Monthly ISO-NE GIS Reporting, Etc.

<sup>5</sup> See VPPSA Comments on Proposed Revisions to Rule 5.100 filed August 17, 2023 in Case No. 19-0855-INV.

<sup>6</sup> See PUC Order Responding to Participant Comments in Case No. 19-0856-RULE filed May 18, 2023 via ePUC.

Rules 5.100 and 5.500 are inconsistent. Even within the proposed Rule 5.500 revisions, there are inconsistencies in the definition of a “Facilities Study” vs. “System Impact Study”.

In addition to the Commission’s rulemaking process, there are several regional and federal rulemaking proceedings underway that may have significant influence on the base assumptions that are guiding these rulemaking proceedings, particularly those by the Federal Energy Regulatory Commission (FERC) and the North American Reliability Corporation (NERC), as well as standards and procedures under the regional grid operator, ISO-New England. VPPSA encourages the Commission to carefully consider how the rules and requirements in the broader energy market landscape may create undue burden, inconsistencies, or duplicative reporting or unnecessary financial implications for all stakeholders including customers, interconnecting utilities, developers, and regulators alike. VPPSA suggests it may be in the best interest of all stakeholders and regulators to allow those proceedings to be resolved prior to implementing final rules under 5.100 or 5.500.

As it relates to specific revisions proposed under Rule 5.500, VPPSA would like to present the following concerns while stressing that additional concerns may arise as the rulemaking proceedings evolve as noted above.

### **5.501 Applicability**

VPPSA finds the language included within 5.501(B) to be overly broad; it does not establish any formal rulemaking or public engagement requirements to guide the



Commission when imposing further requirements for interconnection projects or procedures.

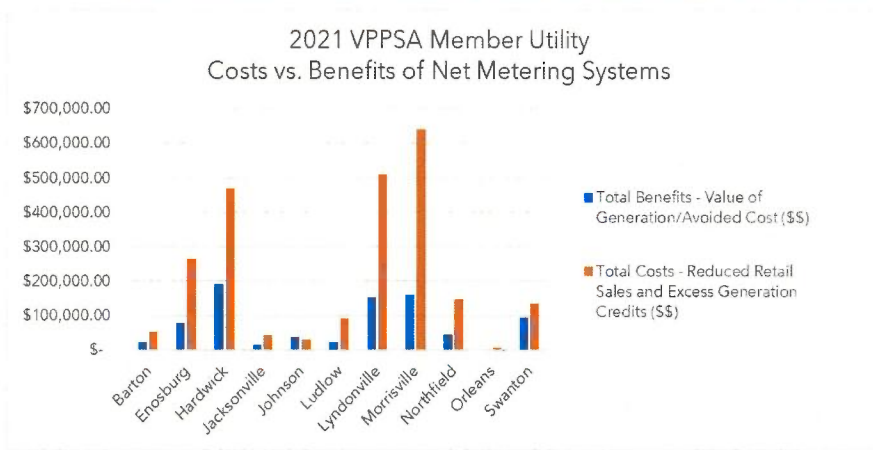
**5.502 Definitions**

**§ 2452, Vermont Statutes, § 2452, Vermont Statutes**

VPPSA appreciates the Commission’s efforts to establish a standard application fee paid to the interconnecting utility to review an interconnection application, however, has significant concerns about the applicability restrictions currently proposed for only those interconnecting applications for Projects over 150 kW. As illustrated in Figure 1 the Total Costs of net-metering systems far outweigh the Total Benefits. Further, for VPPSA Member Utilities, 805 of 817 installed or proposed Interconnection Projects, or 98%, have a 150 kW or smaller capacity as defined under the proposed Rule revisions. The proposed revisions under this 5.502(3) could result

in significant cost shifting to ratepayers unable to access interconnection projects and ultimately cause compounding costs for interconnecting utilities and their ability to

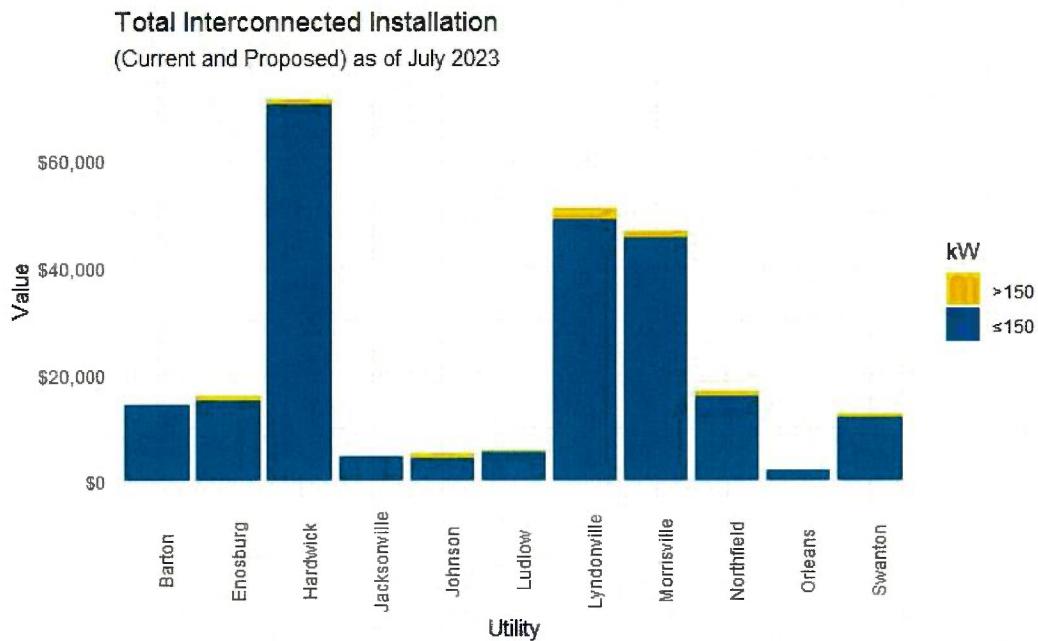
*Figure 1: 2021 VPPSA Member Utility Net-Metering Cost Benefit*



assess or analyze grid impacts from an increasingly distributed though interconnected energy system (see Figure 2 below). VPPSA would also suggest, should the

Commission retain the significantly expanded scope of Rule 5.500, it should include references therein to other elements such as the "Pre-Application" fees referenced under 5.502(36) as well as other Sections within the Rule.

Figure 2: Total Interconnection Projects (Current and Proposed) & Application Fee Implications



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VPPSA recognizes the administrative burden and potential risks involved with unilateral changes to system reporting or processing structures for all stakeholders and suggests a more comprehensive consensus building process be established under 5.502(4) related to the development of a standardized Application Form. VPPSA

suggests similar language to that within the Renewable Energy Standard under 4.419<sup>7</sup>  
(emphasis added):

**(4) Application Forms** - Forms adopted by the Commission, **created in collaboration with the Department of Public Service and Interconnecting Utilities**, for Projects to request interconnection. Application forms may be amended by the Commission, **in collaboration with the Department of Public Service and Interconnection Utilities, as necessary**. Application forms may be submitted electronically **or in accordance with the Interconnecting Utilities specifications**.

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VPPSA acknowledges the importance of understanding the cost of interconnection facilities' system upgrades, however considering the long permitting processes to interconnect a given system, it seems outside the scope for the study itself to provide meaningful cost estimates to demonstrate system impacts. Further, as noted above, there are inconsistencies in the definition and nomenclature of the "Facilities" vs. "System Impact" studies as cross referenced within Section 5.514 of the proposed revisions.

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<sup>7</sup> See Vermont Public Utility Commission [Rule 4.419\(a\) Filing Schedule and Requirements](#)



**5.502(1) Good Utility Practice**

VPPSA finds weaknesses in the proposed Rule’s definition of “Good Utility Practice” and specifically finds the definition overly restrictive and could ultimately have the unintended consequences of restricting the diversity of solutions that may be employed to meet the growing needs of a dispersed and sophisticated modern grid. Further, this definition is encumbered with legalese that is ethereal and highly situational with little burden of proof to define what “Good” utility practice means to a given entity. Should the Commission seek to retain the spirit of this section’s intended language, VPPSA suggests the following (or something similar):

**(21) Generally Acceptable Industry Standards** - *The practices, methods, and generally acceptable business and operational standards consistent with reasonable costs, good business practice, reliability, and safety in the delivery of electric service.*

**5.502(2) Non-jurisdictional Affected Utility**

VPPSA sees the proposed Rule’s definition of “non-jurisdictional affected utility”, when taken together with the definition of “Affected System”, section 5.502(1) appears to be overly broad and an overstep in the interconnection procedures that ultimately invites *potentially* impacted non-utility entities to interfere in the build-out of interconnected facilities in Vermont and further hindering DUs from helping the state meet its renewability and climate goals. For example, 5.503(F) refers to ISO-NE which is an independent system operator, not a utility. The definition of 5.502(1) as written

defines "Affected System" as "...any electric system ...", leaving a degree of ambiguity as to whether an "Affected System" is a utility system or just a party that uses electricity. Further, the definition of 5.502(32) as written could also result in ambiguity with respect to state or regional transmission system operators, energy efficiency utilities, or other unanticipated parties, to somehow interpret this definition to authorize some level of deference by the interconnecting utility to provide a level of data reporting outside the necessary scope for safe and reliable interconnection, protections and/or controls to deliver electric service in a distributed grid. VPPSA recommends that the definition of "Affected System" in section 5.502(1) be amended to read "ISO-NE or ... any electric system that is either directly or indirectly connected..."

### **5.504 Group and Serial Studies**

VPPSA suggests the Commission refer to regional and national terminology to align the State's Rule for continuity and depth of understanding of the Rule's impacts. In particular, the Smart Inverter definition should likely be refocused to define "Inverter Based Resources" and what that entails as it relates to interconnection rules, procedures, and standards both locally, regionally, and nationally through industry standards such as IEEE 1547, ISO-NE Operating Procedures, as well as NERC and FERC regulatory requirements.

### **5.504 Group and Serial Studies**

As mentioned in VPPSA's response to Commission questions in Case 19-0856-RULE dated February 11, 2022, VPPSA agrees with and supports the inclusion of this

language enabling group and serial studies. However, there are concerns around how that sort of study could or should be put into practice and/or what sort of unintentional consequences could result from delayed review or if Section 5.504 has been incorporated solely to enable more micro-grid system studies and interconnections to be streamlined, ultimately creating an exemption under IEEE's 1547 standards and specifications.

**5.505-5.509 Optional Pre-Application Report; Application; Interconnection Queue; Notice of Applications**

VPPSA is concerned with the prescriptive nature under which several of the above Sections have been designed and developed. The existing ePUC system already establishes a degree of time and locational based record. Further, the Vermont Center for Geographic Information previously created an open Geodata Portal to map the State's Renewable Energy Sites.<sup>8</sup> Given a more uniform application form, there would be much less administrative burden should this site be adequately managed and perhaps integrated into the Commission's proposed processes and procedures.

Further, VPPSA objects to 5.508(B) which would in practice interject VELCO between the interconnecting utility, applicants, and external stakeholders. Roles and responsibilities are already established through the Vermont System Planning

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<sup>8</sup> See [VT Center for Geographic Information Vermont Renewable Energy Sites](#) last updated November 18, 2010

Committee (VSPC) to engage with the state's distribution utilities for system planning purposes. There are clear delineations between each party's roles and responsibilities; the proposed Rule revisions create unnecessary burden and overstep of authority for non-interconnecting utilities. The proposed procedures already establish a mechanism for Transmission Level Impact Studies and VPPSA sees no reasonable justification to codify an intermediate notification step in early stages of the application process.

### **5.516 Terms Applicable to All Interconnection Applications**

VPPSA finds some objection to the proposed revisions under the Terms applicable to all interconnection applications, particularly 5.516(N). VPPSA suggests the Commission utilize existing systems and structures such as the VSPC to achieve the same intent - or to codify the appropriate engagement through the VSPC where necessary. Vermont and the regional ISO-NE grid operator already have significant reporting and compliance structures in place to ensure the safe and reliable delivery of service. The Commission's proposed revisions to Rule 5.500 will significantly conflate and restrict the ability to meet the state's goals with no discernable added value.

Thank you for the opportunity to provide these comments on the proposed changes in this rulemaking proceeding. Ultimately, VPPSA suggests these revisions exceed the original rulemaking proceeding's scope, however largely dependent on unresolved regional and federal rulemaking proceedings as well. While this docket has reached the formal rulemaking stage, VPPSA acknowledges there remains

substantial work still to be done and full engagement and analysis of the local, regional, and national interdependencies around other NOPRs or standards revisions should be thoroughly evaluated. VPPSA looks forward to deeper engagement around this proposed rulemaking proceeding.

Respectfully,

/s/

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Annotated  
Text

## 5.500 INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES

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### 5.501 Applicability

(A) This Rule applies to all proposed interconnections of ~~Generation Resources~~ Projects within the State of Vermont ~~which~~ that are not ~~(i)~~ (i) lawfully subject to ISO-NE interconnection rules or successor rules approved by FERC, ~~or (ii) subject to the Board's net metering rule (Rule 5.100), for which the interconnection provisions of those rules will govern.~~ This Rule ~~does not apply~~ applies 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~~ Applications filed on or after the effective date of this Rule.



(B) This Rule establishes minimum requirements. The Commission may adopt additional requirements for the interconnection of Projects by order pursuant to Public Act No. 61. § 7 (2006 Vt., Adj. Sess.).

## 5.502 Definitions

- (1) Affected System – any electric system that is either directly or indirectly connected to the Interconnecting ~~Utility's~~ Utility's electric system that could be adversely affected by the interconnection and parallel operation of the Interconnection ~~Requester's- Generation Resource~~ Requester's Project.
- (2) Application – a request for interconnection initiated by the ~~completed Standard~~ submission of an Application Form provided by the ~~Board~~ Commission for the interconnection of ~~Generation Resources~~ Projects, the ~~\$300~~ Application Fee, ~~documentation of site control where required~~, and any other information regarding certification required by this Rule.
- (3) Application Fee – The fee paid to the interconnecting utility to review an Application. for Projects with a Nameplate Capacity greater than 150 kW, the fee is \$600 or ~~Underwriters Laboratory listing~~ the amount specified in an approved Interconnecting Utility tariff. Unless provided for in an approved Interconnecting Utility tariff, there is no fee for Projects with a Nameplate Capacity of ~~the Interconnection Requester's- Generation Resource. The Board~~ less than or equal to 150 kW. The Application Fee is non-refundable unless the Application is withdrawn within 7 days of submittal. The Interconnecting Utility may ~~revise~~ require electronic payment of the ~~Standard~~ Application Form Fee.
- ~~(2)~~ (4) Application Forms – the forms adopted by the Commission for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission from time to time, ~~as necessary~~. Application Forms may be submitted electronically to the Interconnecting Utility.
- ~~(3)~~ (5) 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.
- ~~(4)~~ (6) Commission – the Vermont Public Utility Commission.
- ~~(5)~~ (7) 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~~ means to cease the transfer of power.
- ~~(6)~~ (8) Disconnection – the state of a circuit or equipment being disconnected from a source of power.
- ~~(7)~~ (9) Distribution Level Study – a System Impact Study conducted at the distribution level.
- ~~(8)~~ (10) Emergency – a situation in which continued interconnection of a ~~Generation~~

~~Resource~~Project is imminently likely to result in significant disruption of service or endanger life or property.

(11) Energy Storage Device – a device that captures energy produced at one time, stores that energy for a period of time, and delivers that energy as electricity for use at a future time.

(12) Export Capacity – the maximum Nameplate Rating of a Project in alternating current (AC), except where such capacity is limited by any of the methods of limiting electrical export listed in Section 5.522 whereby the Export Capacity is the net capacity as limited through the use of such methods (not including Inadvertent Export). For example, if a solar facility paired with a storage facility were proposed with combined output limited to specified MW(s) of export, the specified MW(s) of output would be the Export Capacity.

~~(9)~~(13) Facilities Study – any study or studies performed by an Interconnecting Utility or a designated third party to determine which the cost of Interconnection Facilities or System Upgrades that are necessary for interconnection of ~~the a~~ Generation Resource Project.

~~(10)~~(14) 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).514.

~~(11)~~ — Fast Track — the process for establishing an interconnection for certain qualifying Generation Resources in accordance with Section 5.506 of this Rule.

~~Fast Track Screening Criteria~~ — the screening criteria for Generation Resources set forth in Section 5.505(B) of this Rule.

~~(12)~~(15) Feasibility Study – any study or studies performed by an Interconnecting Utility or a designated third party consisting of initial engineering analyses regarding the feasibility of interconnecting ~~the a~~ Generation Resource, if the ~~Generation Resource is not eligible for Fast Track~~ Project.

~~(13)~~(16) Feasibility Study Report – contains the results of the Feasibility Study, and other information ~~pursuant to Sections 5.507(E)(6)(a) through (e)~~ required by this Rule.

~~(14)~~(17) FERC – the Federal Energy Regulatory Commission.

(18) Flicker – the subjective impression of fluctuating luminance caused by voltage fluctuations.

(19) Frequency Ride Through – the ability of a Project 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 Projects in the Interconnecting Utility's service



territory on a comparable basis.

- ~~(15)~~(20) Generation Resource – a facility that produces electric energy from other energy sources.
- ~~(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 electric 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.
- ~~(16)~~(22) IEEE – Institute of Electrical and Electronics Engineers, Inc.
- ~~(17)~~(23) Interconnecting Utility – electric utility with which the Interconnection Requester proposes to interconnect a ~~Generation Resource~~Project.
- ~~(24)~~ Inadvertent Export - the unscheduled export of power from a Project, exceeding a specified magnitude and for a limited duration, generally due to fluctuations in load-following behavior.
- ~~(18)~~(25) Interconnection Agreement – an agreement between an Interconnecting Utility and Interconnection Requester regarding the interconnection and parallel operation of a ~~Generation Resource~~Project. The Interconnection Agreement is accompanied by or includes Technical Requirements and Operator Protocols.
- ~~(19)~~(26) Interconnection Facilities – all facilities and equipment between ~~the a~~ ~~Generation Resource~~Project and the Point of Interconnection, including any modification, additions, or upgrades that are necessary to physically and electrically interconnect the ~~Generation Resource~~Project to the Interconnecting ~~Utility's~~Utility's distribution or transmission system. Interconnection Facilities are sole-use facilities and ~~shall~~do not include System Upgrades.
- ~~(20)~~ ~~Interconnection Requester~~ – ~~person or entity who proposes to interconnect a Generation Resource with an Interconnecting Utility.~~
- ~~(21)~~(27) Interconnection Queue – the list of Applications for the interconnection of ~~Generation Resources~~Projects, in order based ~~upon~~on the date-and-time stamp of complete Applications, maintained by each Interconnection Utility.
- ~~(28)~~ Interconnection Requester – person or entity who proposes to interconnect a Project with an Interconnecting Utility.

~~(22)~~(29) ISO-NE – ~~Independent System Operator of~~ ISO New England, Inc.

(30) Material Modification – means a modification that has a material impact on the cost or timing of processing an Application with a later queue priority date or a change in the Point of Interconnection. A Material Modification does not include, for example, (a) a change of ownership of a Project, (b) a change or replacement of equipment that is a like-kind substitution in size, ratings, impedances, efficiencies, or capabilities of the equipment specified in the original Application, or (c) a reduction in the output of the Project of 10% or less.

(31) Nameplate Rating – means the sum total capacity of all of a Project’s constituent units, regardless of whether it is limited by any of the methods listed in Section 5.522.

(32) Non-Jurisdictional Affected Utility – a utility other than a Vermont distribution utility that operates an Affected System and will need to provide study support.

~~(23)~~(33) Operator Protocols – an agreement between the Interconnection Requester and the Interconnecting Utility pertaining to the operation and maintenance of the ~~Generation Resource~~ Project.

~~(24)~~(34) Point of Interconnection – the point ~~at which the interconnection between~~ on the Interconnecting ~~Utility’s~~ Utility’s existing system ~~and to which~~ the Interconnection Requester’s equipment interface occurs Requester proposes to interconnect.

~~(25)~~(35) PUC – the Vermont Public Utility Commission.

(36) Pre-Application Fee – a Pre-Application Request includes a Pre-Application Fee. The fee is \$300 or the amount specified in an approved utility tariff.

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

(38) Pre-Application Request – a request from the Interconnection Requester for a Pre-Application Report.

(39) Preliminary Review – the initial process for establishing an interconnection for certain qualifying Projects in accordance with Section 5.512 of this Rule.

(40) Preliminary Screening Criteria – the screening criteria for Projects set forth in this Rule. These criteria are included in the Preliminary Review but will also be analyzed further in Feasibility and System Impact Studies as needed.

(41) Project – a Generation Resource or Energy Storage Device or an electrically connected combined Generation Resource and Energy Storage Device.

~~(26)~~(42) 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.

~~(27)~~(43) Scoping Meeting – an optional meeting between the Interconnecting Utility and the Interconnection Requester to discuss the ~~results~~conclusion of the ~~review of the Fast Track Screening Criteria~~Preliminary Review, and how to proceed with the interconnection request.

~~(28)~~ ~~Standard Application Form~~ – the form included as Attachment 1 to this Rule, as may be amended by the Board from time to time.

(44) Site Control – the ability of the Applicant to control the Project site documented by one of the following: (1) fee simple title to such real property; (2) valid written leasehold or easement interest for such real property; (3) a legally enforceable written option with all terms stipulated, including “option price” and “option term,” unconditionally exercisable by the proponent or its assignee, to purchase or lease such real property or hold an easement for such property; or (4) a duly executed contract for the purchase and sale of such real property. Site control must be unconditional and continuous throughout the process, or a Project will be removed from the queue.

(45) Smart Inverter – a Project’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.

(46) Study Agreement – an agreement between the Interconnecting Utility and Interconnection Requester regarding the terms and conditions of the conduct of any study (e.g., Facilities Study Agreement) proposed by the Interconnecting Utility in order to proceed with the interconnection review process.

~~(29)~~(47) System Impact Study – any study or studies performed by an Interconnecting 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~~Projects.

~~(30)~~(48) System Impact Study Report – contains the results of the System Impact Study, and other information ~~pursuant to Sections 5.507(F)(4)(a) through (e)~~required by this Rule.

~~(31)~~(49) 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 a Generation Resource~~Project. System Upgrades do not include Interconnection Facilities.

~~(32)~~(50) 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~~ Project. 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~~ Project will reduce the quality of service on the Interconnecting ~~Utility's~~ Utility's system.

~~(33)~~ (51) This Rule – ~~PSB Commission~~ Rule 5.500: Interconnection Procedures for Proposed Electric ~~Generation Resources~~ Projects.

~~(34)~~ (52) Transmission Level Study – a System Impact Study conducted at the transmission level.

(53) Voltage Ride Through – the ability of a Project 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 Projects in the Interconnecting Utility's service territory on a comparable basis.

(54) VELCO – Vermont Electric Power Company, which operates the transmission system in Vermont.

### 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.~~

(A) All studies conducted pursuant to this Rule must model all Projects at their Export Capacity, including any limitations on export imposed by means identified in Section 5.522 or at some other reasonable and expected capacity determined by the Interconnecting Utility.

(B) For Projects that include an Energy Storage Device, all studies conducted pursuant to this Rule must consider the operational characteristics unique to Energy Storage Devices that can minimize impacts on system stability and reliability. The Interconnecting Utility may impose inverter settings or operating regimes relating to Energy Storage Devices that ensure system stability and reliability.



(C) All studies must consider all Projects 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.

~~(A)~~(D) After providing an opportunity for comment to the Vermont Department of Public Service, electric utilities, and other affected parties, the Board will Commission may provide model documents, which may be used by the Interconnecting Utility and Interconnection Requester, for the following: ~~Feasibility Study Agreement, System Impact Study Agreement, Facilities~~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 ~~Board under Section 5.508(D) of this Rule~~Commission for resolution of the dispute.

~~(B)~~(E) The time deadlines specified in this Rule, for utilities governed by this Rule, are maximum times: unless the Interconnecting Utility and the Interconnection Requester make a mutual agreement to extend a deadline, provided that such an extension would not affect lower queued Projects. 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.

~~(B)~~ ~~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) 5.504 Different time deadlines may have to be instituted for studies required by Non-Jurisdictional Affected Utilities. These utilities may require studies, including but not limited to Transmission Level Studies (i.e., ISO-NE), but their timelines to provide such studies may not be governed by ~~these rules~~this Rule or the Commission. By way of example and not limitation, when a Project Nameplate Rating is greater than 1 MW, the Interconnecting Utility is required to submit a generator notification form to ISO-NE and ISO-NE may determine that additional study is necessary.

(G) The Interconnecting Utility may contract with consultants, including contractors acting on behalf of the Interconnecting Utility, to perform the activities required under a Study Agreement. The third-party entities contracted with must be licensed appropriately for each area of study.

#### **5.504 Group and Serial Studies**

- (A) An Interconnecting Utility may propose for Commission approval a tariff establishing procedures for group studies. The tariff must include standards and procedures for the following issues:
- (1) Group formation, including the timing, geographic scope, and requirements for participation;
  - (2) How to conduct group studies, including phases, duration, group and individual impact assessments, and distribution and transmission impacts;
  - (3) Group retention, including managing group attrition, (e.g., phases, deposits, site control) and the impact of Project modifications;
  - (4) Cost allocation, including study costs and upgrade costs; and
  - (5) Transitioning to a group study process, including impact on Projects already in the queue.
- (B) If the number and timing of interconnection requests for a specific area ~~is~~ are such that interconnection requests directly affect each other, the Interconnecting Utility may study Projects serially. In the case of serial review, the Interconnecting Utility will notify the Interconnection Requester that its review of the Project will be on hold until the Interconnecting Utility has completed its study or review of Projects ahead of the Interconnecting Requester in the Interconnection Queue.

#### **5.505 ~~Optional Pre-Application Submittal and Determination of Complete Report~~**

- (A) Upon receipt of a completed Pre-Application Report Request and the Pre-Application Fee, the Interconnecting Utility must provide the pre-application data described in this section within 14 days. The Pre-Application Report Request must include a proposed Point of Interconnection, generation technology, storage technology, Project Nameplate Rating, Project Export Capacity, and fuel source. The proposed Point of Interconnection must 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.
- ~~(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~~



~~interconnection 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 interconnection 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 Board, 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.~~

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

(1) Total Export Capacity (MW) of the substation or circuit likely to serve the proposed site;

(2) Allocated Export Capacity (MW) of the substation or circuit likely to serve the proposed site;

(3) Queued Export Capacity (MW) of the substation or circuit likely to serve the proposed site;

(4) Available Export Capacity (MW) of the substation or bank and circuit most likely to serve the proposed site;

(5) Nominal distribution voltage of the circuit most likely to serve the proposed site;

(6) Approximate circuit distance between the proposed site and the substation;



- (7) Hourly load profile by substation and transformer, at the most specific granularity available (e.g., if an 8760-hour profile is not available, then provide a 576-hour profile);
  - (8) Relevant line section(s) peak load estimate, and minimum load data, when available;
  - (9) Number of protective devices and number of voltage regulating devices between the proposed site and the substation;
  - (10) Whether or not three-phase power is available at the site and distance from three-phase service;
  - (11) Limiting conductor rating from proposed Point of Interconnection to the substation;
  - (12) Based on the 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; and
  - (13) Any other information deemed relevant by the Interconnecting Utility.
- (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. If the utility cannot complete all or some of a Pre-Application Report due to lack of available data or need for additional analysis, 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 Interconnection Requester understands that:
- (1) The existence of “Available Generating 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 Interconnecting Utility must, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

## 5.506 Application

(A) All Projects must complete the appropriate Application Form as follows:

- (1) For Projects with a Nameplate Rating up to 150 kW;
- (2) For Projects greater than (>) 150 kW; or
- (3) As otherwise provided by the Commission.

(B) All Projects must provide:

- (1) Information regarding certification or Underwriters Laboratory listing of the Interconnection ~~Requester's Generation Resource.~~ Requester's Project;

~~(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~~

- (2) ~~The Interconnecting Utility shall provide the~~ Information regarding inverter settings, including inverter data sheets;
- (3) For any Energy Storage Device, the proposed use case(s) or operational requirements and restrictions under the Project should be studied.

(C) Projects with a Nameplate Rating greater than 150 kW, including the combined Nameplate Rating of any Generation Resource and Energy Storage Device, must provide:

- (1) The Application Fee;
- (2) Documentation of Site Control;
- (3) An electrical one-line diagram signed and stamped by a licensed professional engineer ; and
- (4) A site plan. The site plan should show the location of the facility and location of the facility equipment (to the extent that it is known).

### 5.507 Interconnection Queue

(A) Interconnection ~~Requester with a notification of receipt within 5 business days of receiving the~~ Queue. Each interconnecting utility must maintain an Interconnection ~~Requester's~~



Application Queue of all proposed Projects.

- (B) Interconnection Queue position. The Interconnecting Utility ~~shall notify~~ must assign each Project a position in the Interconnection Requester ~~within 10 business days of~~ Queue based on the ~~receipt date and time stamp~~ of the ~~Application as to whether the Application is~~ Interconnection Requester's complete ~~or incomplete.~~ Application.
- (C) ~~(a) — If the Application is complete, the Interconnecting Utility shall~~ Certain Interconnection Queue information available online. The Interconnecting Utility must make its Interconnection Queue available online, redacted to include only the Project type, queue position, location by town, interconnection circuit, fuel type (including renewable sources), date of interconnection request, expected operation date, study status, Nameplate Rating of each energy resource included in the Project, and Export Capacity of proposed Projects.

**5.508 Notice of Applications**

- (A) Notice to Affected Systems. The Interconnecting Utility must notify the Affected ~~Systems~~ System's utility 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) ~~(b) — If the Application is incomplete, the Interconnecting Utility shall~~ Notification to VELCO. To assess any transmission-level impacts and to coordinate any needed transmission-level interconnection studies, the Interconnecting Utility must send a copy of the Application once deemed complete to VELCO for all proposed Projects greater than 1 MW in Nameplate Rating. Within 14 days of receipt, VELCO must forward the Application to ISO-NE to determine whether Transmission Level Studies are required. VELCO will notify the Interconnecting Utility within 14 days of receipt of ISO-NE's determination. VELCO's response will include the date of submittal to ISO-NE for information. If requested by VELCO, the Interconnecting Utilities will provide a copy of the complete Application for Projects smaller than 1 MW Nameplate Rating.
- (C) Notification to distribution utilities providing subtransmission services. To assess any subtransmission-level impacts and to coordinate any needed subtransmission-level studies, the Interconnecting Utility will notify the distribution utility providing subtransmission service of any proposed Projects with a Nameplate Rating greater than 150 kW.

**5.509 Cost Allocation**

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

(B) For group review of multiple Applications, the Interconnecting Utility may allocate costs based on a methodology specified in an approved utility tariff.

### 5.510 Procedure for Projects with a Nameplate Rating of 500 kW or Less

(A) The Interconnecting Utility must notify the Interconnection Requester within 7 days of the receipt of the Application if the Application is incomplete. The notification must include 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.

(B) If the Interconnecting Utility determines that there are interconnection issues, the Interconnecting Utility must notify the Interconnecting Requester within the following timeframes:

(1) In the case of a Project with an Export Capacity of 15 kW or less, the 15th day following the date of receipt of a complete Application; and

(2) In the case of a Project with an Export Capacity greater than 15 kW and no more than 500 kW, the 31st day following the date of receipt of the complete Application.

(C) For Projects that have an Export Capacity not greater than 15 kW and a Nameplate Rating not greater than 50 kW, the following screening criteria will be utilized:

(1) The proposed Project must meet current requirements per Section 5.520 regarding inverter and Project equipment package certification;

(2) The proposed Point of Interconnection is not a transmission line; and

(3) The aggregate Export Capacity, including the Export Capacity of the proposed Project, on a distribution circuit will not cause any customer equipment or distribution equipment, including but not limited to conductors, distribution transformers, and fuse cutouts, to exceed the equipment's thermal ratings.

(D) For Projects that have an Export Capacity greater than 15 kW or a Nameplate Rating greater than 50 kW, the Interconnecting Utility will review the screening criteria in 5.512(D). If the Interconnecting Utility determines that the interconnection raises system issues, the Interconnecting Utility must notify the Interconnecting Requester in writing within the timeframes set forth in (B) above. The Interconnecting Utility's letter must include a recommendation as to how the interconnection issues could be resolved by the Interconnection Requester or state whether additional analysis is required.

(E) For Projects with a Nameplate Rating greater than 150 kW, the Interconnecting Utility may require electronic payment of the Application Fee. If the Interconnecting Utility allows the Application Fee to be paid by check, the Interconnecting Utility must wait until the



~~fourteenth~~ 14th day following receipt of the Application for the Application Fee to arrive. If the Application Fee has not arrived in that time period, the Application will be deemed incomplete.

- (F) If additional interconnection analysis is required, the applicable procedures set forth below in this Rule will be followed.
- (G) The Interconnection Requester must notify the Interconnecting Utility immediately of any change in the information provided in the Application that was determined to be complete, including but not limited to the loss of site control.

### **5.511 Procedure for Projects with a Nameplate Rating Greater than 500 kW**

- (A) The Interconnecting Utility must notify the Interconnection Requester of receipt within 7 days of receiving the Interconnection Requester's Application.
- (B) The Interconnecting Utility must notify the Interconnection Requester within 14 days of the receipt of the Application as to whether the Application is complete or incomplete.

(1) If the Application is incomplete, the Interconnecting Utility must 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 of a revised Application containing the listed information. The Interconnecting Utility will have 14 days to review the revised Application for completeness.

~~(C) 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.~~

~~(D) 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.~~

~~— Fast Track~~

- ~~(2) The Interconnecting Utility may require electronic payment of the Application Fee. If the Interconnecting Utility allows the Application Fee to be paid by check, the Interconnecting Utility must wait until the 14th day following receipt of the Application for the Application Fee to arrive. If the Application Fee has not arrived in that time period, the Application will be deemed incomplete.~~
- ~~(3) Complete Applications reviewed pursuant to this subsection will be reviewed using the procedures specified in this Rule.~~
- ~~(4) The Interconnection Requester must notify the Interconnecting Utility immediately of any change in the information provided in the Application that was determined to be complete, including but not limited to the loss of site control.~~

### 5.512 Preliminary Review Screening Process

~~(A) Within 15-business~~30 days after an Application is determined to be complete, the Interconnecting Utility notifies the Interconnection Requester it has received a complete Application, the Interconnecting Utility shall~~must~~ perform a review of the Application under the ~~Fast Track~~Preliminary Review screening criteria set forth below, ~~shall notify the Interconnection~~and must notify the Interconnection Requester of the conclusion and determination if additional study is required. However, the Preliminary Review process can be waived if the Interconnecting Utility and Interconnecting Requester of the results, and shall include with the notification copies of the~~mutually agree to move directly to the study process.~~

~~(A)(B) The Preliminary Review is an analysis and data underlying the Interconnecting Utility's determinations under the Fast Track Screening Criteria~~by the Interconnecting Utility of the Preliminary Screening Criteria in Section 5.512(D) and is performed with readily available data and models. If the Interconnecting Utility is unable to perform a Preliminary Review without extensive data acquisition, model development, load flow analysis, or short-circuit analysis, then the Preliminary Screening Criteria are considered failed.

~~(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.~~

~~(C) 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. On the basis of the Preliminary Review, if the Interconnecting Utility concludes that additional study is required, the Interconnecting Utility must convey these concerns in~~



writing to the Interconnection Requester within the required timeframes.

(D) Preliminary Screening Criteria:

- ~~(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)~~(1) ~~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.~~ line.
- ~~(2)~~ ± ~~The aggregated generation~~Export Capacity, including the ~~proposed Generation Resource~~capacity of the Project, on a distribution circuit will not ~~contribute more than 10% to~~ cause any distribution equipment, including but not limited to conductors, substation transformers, line stepdown transformers, substation breakers, regulators, fuse cutouts, and line reclosers, or customer equipment on the system, to exceed the equipment's thermal ratings.
- ~~(4)~~ — The proposed Project's Nameplate Rating, in aggregation with other Generation Resource Nameplate Ratings on the distribution ~~circuit's maximum fault current at the point on the high-voltage (primary) level nearest the proposed interconnection point.~~
- ~~(5)~~(3) ~~The aggregated generation, including the proposed Generation Resource, on a distribution circuit~~circuit, will not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers),) or ~~customer~~Interconnection Requester equipment on the system to exceed ~~85~~87.5% of the short-circuit interrupting capability; nor ~~is~~will the ~~Generation Resource~~Project be proposed for a circuit that already exceeds ~~85~~87.5% of the short-circuit interrupting capability.
- ~~(4)~~ The proposed Project will have no adverse impact on existing protection coordination.
- ~~(5)~~ The proposed Project, in aggregation with other Export Capacity on the distribution circuit, will not result in potential for Transmission Ground Fault Overvoltage (TGFOV).
- ~~(6)~~ The proposed Project, in aggregation with other Export Capacity on the distribution circuit, will not cause unintentional islanding. The proposed Project does not require additional unintentional islanding protection.
- ~~(6)~~(7) For interconnection of a proposed single-phase or effectively -grounded three-phase ~~Generation Resource~~Project where the primary distribution system is three-

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

~~(8)~~ The proposed Project is not located in an area where there are known or posted transient stability limitations to Projects located in the general electric vicinity, including but not limited to known harmonic issues.

~~(9)~~ The proposed Project will not affect the Interconnecting Utility's ability to maintain voltages consistent with Standard ANSI C84.1.

~~(7)~~(10) Voltage drop due to caused by starting the proposed generatorGeneration Resource is within acceptable limits, meaning that inrush current, due to starting caused by the startup of the proposed ~~Generation Resource~~Project 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~~Project 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 Projects.

~~(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 preparationsThe Interconnection Requester affirms 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-basedProject meets the applicable codes and standards of Section 5.520 or is a certified 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 package under Section 5.519.~~

- ~~(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.~~

### ~~5.506 Applications Eligible for Fast Track~~

- ~~(12) (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 Flicker caused by the proposed Project must comply with IEEE Standard 1547.~~
- ~~(13) For Projects that will not export to the grid, the voltage drop caused by Inadvertent Export is within acceptable limits, meaning that voltage change at the primary level caused by the loss of load at the Project point of interconnection is less than 3%.~~
- ~~(14) Identification of affected Vermont utilities and/or Non-Jurisdictional Affected Utilities. These entities must identify no adverse impact on their Affected Systems.~~
- ~~(E) If the proposed interconnection passes the Preliminary Screening Criteria, the interconnection request must be approved, and the Application will not require additional study. Approval of an Application must be provided to the applicant in writing. For Projects greater than 150 kW in capacity, the Interconnecting Utility must provide the Interconnection Requester with an executable Interconnection Agreement within 7 days after the completion of the Preliminary Review. Projects with a Nameplate Rating of less than 150 kW may interconnect without an Interconnection Agreement unless operating restrictions or requirements are identified. For Projects with a Nameplate Rating of less than 150 kW with operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must provide the Interconnection Requester with an executable Interconnection Agreement within 7 days after the completion of the Preliminary Review.~~
- ~~(F) If the Project fails the Preliminary Screening Criteria, but the Interconnecting Utility determines that the Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the Interconnecting Utility must notify the Interconnection Requester in writing that the Application is approved. If the Project is greater than 150 kW in Nameplate Rating or has operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must provide an~~



executable Interconnection Agreement within 7 days. The Interconnecting Utility must provide a technical justification in the Preliminary Review conclusion regarding why the proposed Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards.

(G) If the Preliminary Review identifies additional facilities or system upgrades that are not of a routine and uncomplicated nature and are needed to mitigate potential adverse impacts on the electric system, and if neither a Feasibility Study or System Impact Study is required, the Interconnecting Utility must send the Interconnection Requester an executable Facilities Study agreement (if required), which must include an outline of the scope of the study and a good-faith estimate of the cost to perform the study, within 7 days after the Interconnecting Utility provides the Preliminary Review conclusion.

~~(E)~~(H) If the Project fails the Preliminary Screening Criteria, and the Interconnecting Utility does not or cannot determine from the initial review of the Fast Track Screening Criteria, if the Application that the Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards, and unless the Interconnection Requester is eligible for Fast Track willing to consider minor modifications or further study, the Interconnecting Utility shall present must provide 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, opportunity to attend a good-faith cost estimate shall accompany the notification that the requested interconnection can be Fast Tracked. Scoping Meeting. If the Interconnection Requester indicates in response to this notification opportunity that it does not want to hold a Scoping Meeting or proceed further to additional study, the Application will be considered withdrawn.

~~(D)~~(I) (B) — If mutually agreed upon, a Scoping Meeting to discuss available options may be scheduled and held within 10 business 14 days of the Interconnecting Utility notifying the Interconnection Requester of the results of the review of the Fast Track Screening Criteria Preliminary Screening Criteria. The purpose of the Scoping Meeting may be to review existing studies relevant to the Interconnection Requester's Application.

~~(C) — Applications that qualify for Fast Track shall not require Feasibility, System Impact At the time of notification of the Interconnecting Utility's determination, or Facilities Studies, and shall proceed directly to the Interconnection Agreement in accordance with Section 5.506(D).~~

~~(D) — Interconnection Agreement~~

~~(J) If the proposed Generation Resource is eligible for Fast Track, at the Application shall be approved and Scoping Meeting, the Interconnecting Utility shall must:~~

~~(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 the 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 and the Project is greater than 150 kW in Nameplate Rating or has operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must provide the Interconnection Requester with an executable Interconnection Agreement before holding a Scoping Meeting if a within 14 days of the Scoping Meeting or, if there is to be held, within 5 business days of a decision not to hold an 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 Board 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.~~

### ~~5.507 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.~~

- ~~(1) 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.~~

~~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.~~

- ~~(2) 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 Project under the study processes described in this Rule.~~

- ~~(E)~~(K) 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)~~ 5.513 Feasibility Study

- (A) ~~(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, In cases where~~ the Interconnecting Utility ~~shall~~ determines that a Feasibility Study is necessary, the Interconnecting Utility must provide the Interconnection Requester with an executable Feasibility Study agreement ~~including that includes~~ an outline of the scope of the study and a good-faith estimate of the cost to perform the study. The executable Feasibility Study agreement will be provided by the Interconnecting Utility within 7 days after the close of the Scoping Meeting, or the date of the decision not to hold a Scoping Meeting. In order to remain in the Interconnecting ~~Utility's~~ Utility's Interconnection Queue, the Interconnection Requester must return, within ~~15 business~~ 21 days, an executed Feasibility Study agreement along with a deposit of the lesser of ~~fifty percent~~ 50% of estimated Feasibility Study costs or \$1,000.

~~A model Feasibility Study Agreement will be provided by the Board; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.~~

- (B) ~~(2)~~ ~~— A Feasibility Study shall~~ Feasibility Study must 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~~ that will be exceeded as a result of the ~~interconnection~~ Project;
  - (2) Initial identification of any thermal overload or voltage limit violations on transmission or distribution systems resulting from the ~~interconnection~~ Project;
  - (3) Initial review of islanding, grounding requirements, and system protection; and
    - ~~(a) — 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.~~
  - ~~(4)~~ ~~(3)~~ ~~— Identification of Affected Utilities and/or Non-Jurisdictional Affected Utilities.~~
- (C) A Feasibility Study ~~shall~~ must model the impact of the ~~Generation Resource regardless of purpose,~~ Project 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~~ Project is being installed.
- (D) ~~(4)~~ ~~— A Feasibility Study shall~~ must 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) ~~(5)~~—In performing the Feasibility Study, the Interconnecting Utility ~~shall~~must rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection Requester ~~shall~~will not be charged for such existing studies; however, the Interconnection Requester ~~shall be~~is responsible for charges associated with any new study or modifications to existing studies that are reasonably necessary to perform the Feasibility Study.
- (F) ~~(6)~~—Feasibility Study Report and Cost Reconciliation
- (1) ~~(a)~~—Once a Feasibility Study is completed, the Interconnecting Utility ~~shall~~must 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~~Utility's control, the Interconnecting Utility ~~shall~~must complete a Feasibility Study, and transmit the Feasibility Study Report to the Interconnection Requester, within ~~30-business~~45 days of the Interconnection ~~Requester's agreement to conduct a~~Utility's receipt of an executed Feasibility Study- agreement and deposit as described in Section 5.512(A).
- (2) ~~(b)~~—The Feasibility Study Report ~~shall~~must 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.~~

~~(3) (7) The Interconnecting Utility must provide the applicable Study Agreement or Interconnection Agreement to the Interconnection Requester.~~

- (G) If a Feasibility Study shows no potential adverse impacts on the electric system, and no additional facilities are required, or the only additional facilities are not transmission voltage equipment or are of a routine and uncomplicated nature for the Interconnecting Utility ~~shall~~ (e.g., Projects covered by existing tariffs, fuses, relay settings), the Interconnecting Utility must send the Interconnection Requester written approval of the Application and, in the case of Projects with a capacity greater than 150 kW in Nameplate Rating or with operating restrictions or requirements imposed as part of the interconnection, an executable Interconnection Agreement within 5-business ~~14~~ 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 Board; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into different arrangements ~~delivery of the Feasibility Study Report.~~
- (H) ~~(8)~~ (8)—If a Feasibility Study shows no potential adverse impacts on the electric system, but additional facilities are required that need a Facilities Study, the Interconnecting Utility ~~shall~~ must 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 Board will provide a model Facilities Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.~~ within 7 days after delivery of the Feasibility Study Report.
- (I) ~~(9)~~ (9)—If a Feasibility Study shows the potential for adverse impacts on either the distribution system or the transmission system, the review process ~~shall~~ will proceed to the System Impact Study, and the Interconnecting Utility ~~shall~~ must 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~~ 7 ~~days after receiving confirmation from~~ of the Interconnection Requester that it would like to proceed with ~~delivery of the interconnection.~~ Feasibility Study. The executable System Impact Study agreement ~~shall~~ must specify whether it and the cost estimate are for a Distribution Level Study, Transmission Level Study, or both. ~~The Board will provide a model System Impact Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement~~ Additional study is not required if the adverse impacts are minor, routine in nature, or easily mitigated.



~~(F) — System Impact Study~~

~~(J) (1) — In instances where a Feasibility Study shows potential impacts on the transmission system or a Non-Jurisdictional Affected Utility, within 7 days following transmittal of the Feasibility Study Report, the Interconnecting Utility must notify the Affected Systems. Affected Systems may require performance of separate System Impact Studies.~~

**5.514 System Impact Study**

(A) In order to remain in the Interconnecting ~~Utility's~~Utility's Interconnection Queue, the Interconnection Requester must return, within ~~15-business~~21 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 Board; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement.~~

(B) ~~(2)~~—A System Impact Study includes two sub-studies: a Transmission ~~Level~~StudyLevel 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 Preliminary Review, Scoping Meeting, and/or Feasibility Study. If the Preliminary Review, Scoping Meeting, or Feasibility Study identifies potential adverse impacts on the distribution system, a Distribution Level Study shallmust be performed. If the Scoping Meeting, Feasibility Study, or Distribution Level Study identifies potential adverse impacts on the transmission system, a Transmission Level Study shallmust be performed.

(1) ~~(a)~~—The Distribution Level System Impact Study shallmust 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) ~~(b)~~—The Transmission Level System Impact Study shallmust 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) ~~(3)~~—The purpose of the System Impact Study shallbeis to identify and specify the impacts ~~to~~on electric transmission and/or distribution system stability and reliability that would result if the proposed ~~Generation Resource~~Project were interconnected without Project modifications or system modifications, focusing on the adverse impacts identified in the Preliminary Review, 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.~~

(D) (4) — If the Project being reviewed includes an Energy Storage Device, the use case(s) for the Energy Storage Device will be included in the review, and the operation of the storage system will be limited to those use cases studied, which will be specifically identified in the Interconnection Application. Should the applicant want to change or add use cases for the Project, notice must be provided to the Interconnecting Utility and further study may be required and the changes may be considered a Material Modification.

~~(D)~~ (E) System Impact Study Report and Cost Reconciliation

(1) ~~(a)~~ (a) — Once a System Impact Study is completed, the Interconnecting Utility shall~~must~~ prepare a System Impact Study Report and transmit it to the Interconnection Requester. Barring unusual circumstances outside of the Interconnecting ~~Utility's~~Utility's control, the System Impact Study determined to be necessary by the Feasibility Study or Scoping Meeting ~~shall~~must be completed and transmitted to the Interconnection Requester within ~~45 business~~60 days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was performed, and ~~60~~90 days from receipt of the System Impact Study agreement and deposit if a Feasibility Study was not performed. ISO-NE or Affected Systems may require performance of a separate System Impact Study that may not necessarily be governed by this Rule.

(2) ~~(b)~~ (b) — The System Impact Study Report shall~~must~~ state the assumptions upon ~~which~~the~~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~~must provide a list of ~~facilities~~upgrades that are required as a result of the Interconnection ~~Requester's~~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 must be provided with a Facilities Study agreement or Interconnection Agreement.

~~(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.~~

~~(E)(F) (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 must, within 5 business 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 under consideration for interconnection in the Interconnection Queue, the Interconnection Requester must return an executed supplemental System Impact Study Agreement within 15 business 21 days with a deposit equivalent to the estimated cost of the supplemental study. Barring unusual circumstances outside of the Interconnecting Utility's Utility's control, a supplemental System Impact Study shall must be completed and transmitted to the Interconnection Requester within 45 business 60 days of the receipt of the supplemental System Impact Study agreement. The report and cost reconciliation shall follow the procedures detailed in Section 5.507(F)(4)(b) through (d), above.~~

~~(F)(G) (6) — In instances where a Feasibility Study or a System Impact Study shows potential for adverse impacts on the transmission system, within 5 business 7 days following transmittal of the Feasibility Study Report or System Impact Study Report, the Interconnecting Utility shall must notify the Affected Systems in accordance with the same interconnection notification protocols that would apply if the Application were subject to~~



~~FERC jurisdiction~~ System's utility.

~~(G)~~(H) ~~(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~~ Requester or Interconnecting Utility 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.~~ An Affected System's utility must participate in the study and provide all information necessary to prepare the study. Affected Systems may require performance of a separate System Impact Study.

~~(H)~~(I) ~~(8)~~ — 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, the Interconnecting Utility ~~shall~~ must send the Interconnection Requester written approval of the Application and, in the case of Projects with a Nameplate Rating greater than 150 kW or with operating restrictions or requirements imposed as part of the interconnection, an executable Interconnection Agreement within ~~15 business~~ 21 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 Board; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into different arrangements. delivery of the System Impact Study Report.

~~(H)~~(J) ~~(9)~~ — If a System Impact Study shows that additional facilities other than those that are routine and uncomplicated in nature for the utility (e.g., Projects covered by existing tariffs, fuses, relay settings) are required, the Interconnecting Utility ~~shall~~ must 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~~ 7 days after ~~receiving confirmation from the Interconnection Requester that it would like to proceed with the interconnection.~~ The Board will provide a model Facilities Study Agreement; however, the Interconnecting Utility and the Interconnection Requester may voluntarily enter into a different arrangement. delivery of the System Impact Study Report.

5.515 Facilities Study

(A) ~~(1)~~ — ~~In order~~ To remain in the Interconnecting ~~Utility's~~ 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.~~

(B) ~~(2)~~ — Facilities Study preparation. Transmission-system and/or distribution-system interconnection design for any required Interconnection Facilities and/or System Upgrades

~~shall~~must be performed under a Facilities Study agreement between the Interconnection Requester and the Interconnecting Utility.

- (C) ~~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~~Interconnection Facilities' design ~~shall~~will be reviewed, and modified as necessary by the Interconnecting Utility, ~~prior to~~before acceptance under the provisions of the Facilities Study agreement. If the parties agree to separately arrange for design and construction, the Interconnecting Utility ~~shall~~must make sufficient information available to ~~the Interconnection Requester to permit~~allow the Interconnection Requester to obtain an independent design and cost estimate for any necessary facilities. This provision ~~shall~~does not prohibit the Interconnecting Utility and the Interconnection Requester from reaching agreement to protect information that one or the other deems confidential, and ~~shall~~does not require the Interconnecting Utility to disclose information that it is otherwise ~~obliged~~obligated not to disclose or affect the ~~Board's~~Commission's authority to compel or restrict disclosure of information.

- (D) (3) — System Upgrades. In cases where System Upgrades are required, the Facilities Study ~~shall~~must be completed and a Facilities Study Report transmitted to the Interconnection Requester within ~~45~~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~~must be completed and a Facilities Study Report transmitted to the Interconnection Requester within 30 ~~business~~ days. In either event, the Facilities Study Report ~~shall~~ must 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.~~
- (E) The Interconnecting Utility must send the Interconnection Requester an executable Interconnection Agreement within 21 days after delivery of the Facilities Study Report.

### 5.516 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.~~
- (A) The Interconnection Requester is responsible for meeting all applicable codes and standards of Section 5.519 unless interconnection is accomplished by a certified equipment package under Section 5.518.
- (B) Interconnection Agreement. Except in the case of Projects that are allowed under this Rule



to interconnect without a written agreement, upon completion of the necessary studies, if any, the Application ~~shall~~must be approved and the Interconnecting Utility ~~shall~~must provide the Interconnection Requester with 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 time limits identified in the portions of this Rule detailing the study processes used for the Project. The Interconnection Requester's Application will be deemed withdrawn and the Interconnection Requester will lose its Interconnection Queue position unless the Interconnection Requester returns the executed Interconnection Agreement ~~within one calendar~~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 Project, but in no case later than one year ~~or~~after provision of the executable Interconnection ~~Requester's Application shall be deemed withdrawn and~~Agreement. The Interconnection Requester ~~shall lose Interconnection Queue position. The Interconnection Requester~~bears all risk if, during the period between completion of any studies and the return of the executed Interconnection Agreement, ~~(i)~~ network conditions change such that the ~~Studies'~~studies' results are no longer valid and the studies need to be revisited and updated at the Interconnection ~~Requester's~~Requester's cost ~~and (ii, or (2)~~ 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) The Interconnection Agreement must require that Voltage Ride Through capability, Frequency Ride Through capability, and Smart Inverter functionality comply with the standards required by this Rule. If mutually agreed upon by the Interconnecting Utility and Interconnection Requester, the Interconnection Agreement must require enhanced Voltage Ride Through, Frequency Ride Through, or other Smart Inverter functionality, consistent with the standards required by this Rule and with Good Utility Practice.

~~(E)~~(D) Reasonable Efforts. The Interconnecting Utility ~~shall~~must 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 in this Rule~~, it ~~shall~~must 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~~must maintain records, subject to audit, of all ~~Generation Resource~~Project 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~~will 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~~will be borne by the Interconnecting Utility.



- (E) Material Modifications 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, which will result in loss of queue position and will require submission of a new Application.
- ~~(D)~~(F) 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 ~~Board~~Commission, with copies to the other party and the Vermont Department of Public Service, stating the issues in dispute. Pursuit of dispute resolution ~~shall~~will not affect an Interconnection ~~Requester's~~Requester's Application with regard to consideration for interconnection, nor its position in an Interconnection Queue.
- ~~(E)~~(G) (Interconnection Metering. Any metering necessitated by the interconnection of the ~~Generation Resource~~Project ~~shall~~must be installed at the Interconnection ~~Requester's~~Requester's expense in accordance with the Interconnecting ~~Utility's~~Utility's reasonable specifications.
- ~~(F)~~(H) Commissioning. Commissioning tests of an Interconnection ~~Requester's~~Requester's installed equipment ~~shall~~must be performed pursuant to applicable codes and standards as identified by the parties in the Interconnection Agreement. The Interconnecting Utility ~~shall~~must be given ~~10 business days~~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. The Interconnecting Utility must electronically record the results of the commissioning tests, including the control settings, momentary cessation settings, Voltage and Frequency Ride Through settings, and the vintage of the applicable standards.
- (I) One-Line Diagram. In the case of Projects with a Nameplate Rating greater than 150 kW, the Interconnection Requester must, within 30 days of the Project in-service date, supply to the Interconnecting Utility an "as built" one-line diagram of what was installed during the construction process. Such diagrams must be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility must be addressed pursuant to the Interconnection Agreement.
- (J) Notification Before 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 must, before exceeding a previously provided cost estimate, promptly notify the Interconnection Requester if such costs are likely to exceed the previously provided estimate and must provide the Interconnection Requester with a revised total estimated cost for the study. The Interconnecting Utility must 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 Interconnection Requester is responsible for all such costs incurred to date and the Application will be deemed withdrawn.
- (K) 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 must book this income separately.

- (L) Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Project, the Interconnection Requester must bear the entire cost of such facilities. Within 42 days of final collection of all material, labor, contractor, permitting, and other costs incurred by the Interconnecting Utility in constructing, testing, and commissioning the Interconnection Facilities and System Upgrades, the Interconnecting Utility must provide the Interconnection Requester with an invoice. The Interconnection Requester must pay all such costs that exceed the deposit within 42 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Interconnecting Utility must return such excess, without interest, within 42 days of receipt of the invoice or resolution of any dispute.
- (M) Market Participation. As part of the Application, the Interconnecting Requester must notify the Interconnecting Utility whether the Project will be participating in the wholesale electricity markets, including whether the Project will be aggregated with other resources to participate. If market participation or use cases change after a Project has completed studies or received an Interconnection Agreement, the Interconnecting Utility must be notified and additional review may be required.
- (N) Transmission-level studies. In the case of Projects with a Nameplate Rating greater than 1 MW, the Interconnecting Utility must coordinate with VELCO to determine whether the aggregate amount of Projects has reached the saturation level requiring a transmission-level cluster study. In the event such studies are needed, the Interconnecting Utility will notify the affected Interconnection Requesters. Those Projects included in the cluster study will follow the study process laid out in this Rule, except that the scope of the System Impact Study will include transmission-level studies as directed by ISO-NE. Typically, such studies will include steady state, short circuit, stability, and PSCAD studies.

#### **5.517 Cost Responsibility and Cost Reconciliation**

- (A) Costs of facilities and cost responsibility. Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Project, the Interconnecting Utility must provide a detailed, good-faith estimate of the costs, and the Interconnection Requester must pay the full amount of the estimate or, if such costs are covered by an Interconnection, Line Extension, or other tariff, said charges must be billed and paid pursuant to the tariff.
- (B) Within 21 days of submittal of a study report, the Interconnecting Utility must provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the study. The Interconnection Requester must pay the full cost of the study. The Interconnecting Utility must 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 study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the 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 study, the Interconnecting Utility must refund such excess, without interest, within 21 days of submittal of the study report.

- (C) Costs of transmission cluster studies. Where additional transmission-level cluster studies are required to determine any aggregate transmission impacts, the Interconnecting Utility must provide the Interconnection Requester with a detailed, good-faith estimate of the study costs. The Interconnection Requester must pay the full amount of the estimate or, if such costs are covered by an Interconnection Agreement or other tariff, said charges will be billed and paid pursuant to the tariff.

### 5.518 Disconnection

- (A) The following requirements ~~shall~~ govern the disconnection from the electrical system of a ~~Generation Resource Project~~ that was interconnected under these procedures. These requirements apply to such ~~Generation Resources Projects~~ only and do not supplant ~~Board 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~~ Utility's system at any time. Such temporary disconnection ~~shall~~ is 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 Project~~, the Interconnecting Utility ~~shall~~ must notify the Interconnection Requester within 24 hours after the disconnection.
- (1) If the Emergency is not caused by the ~~Generation Resource Project~~, the Interconnecting Utility ~~shall~~ must assist the Interconnection Requester with reconnecting the ~~Generation Resource Project~~ upon cessation of the Emergency.
- (2) If the Emergency is caused by the ~~Generation Resource Project~~, the Interconnecting Utility ~~shall~~ must communicate the nature of the problem to the Interconnection Requester within 5 days, and must 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~~ must file a disconnection petition with the ~~Board Commission~~. In any proceeding on such a petition, the Interconnecting Utility ~~shall bear~~ bears the burden of proof to demonstrate the reasonableness of disconnection.
- (D) Non-Emergency disconnections ~~shall~~ must follow the same procedure as Emergency disconnections outlined above, except that the Interconnecting Utility ~~shall~~ must give written notice of the disconnection no earlier than 10 days and no later than 7 days ~~prior to~~ before the first date on which disconnection of the ~~Generation Resource Project~~ may



occur. Such notice ~~shall~~must 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~~Requester's written agreement to notice requirements for non-Emergency disconnections ~~which~~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~~Project is involuntarily disconnected may file a complaint with the ~~Board~~Commission at any time following disconnection. The ~~Board~~Commission may hold a hearing to determine whether the ~~Generation Resource~~Project should be reconnected to the Interconnecting Utility. In the event of the filing of such a complaint, the Interconnecting Utility ~~shall bear~~bears the burden of proof to demonstrate the reasonableness of disconnection.
- (F) ~~Codes and Standards.~~ A Project may be disconnected for exceeding the Export Capacity applied for and studied during the interconnection process, if such excess Export Capacity is not remedied within a reasonable time, after notice of such excess export is given by the Interconnecting Utility.

#### 5.519 Certification of Project Equipment Packages

- (A) A Project equipment package will 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 will 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 5.519, below. An "equipment package" includes all interface components, including switchgear, inverters, or other interface devices, and may include an integrated Project. If the equipment package has been tested and listed as an integrated package that includes a Generation Resource, it does 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 will 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.

### 5.520 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~~will be applied ~~under Section 5.505, 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.

- (A) ~~(A)~~ — IEEE ~~P1547 Standard~~1547 Series of Standards for Interconnecting Distributed Resources with Electric Power Systems as adopted ~~and successor of related IEEE approved standards.~~
- (B) ~~(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.~~
- (C) ~~(D)~~ — ~~NFP A~~NFPA 70 ~~(2002)~~ National Electrical Code;
- (D) ~~(E)~~ — IEEE Standard C37.90.1-~~1989 (R1994)~~ IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems;
- (E) ~~(F)~~ — IEEE Standard C37.90.2-~~(1995)~~ IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers;
- (F) ~~(G)~~ — IEEE Standard C37.108-~~1989 (R2002)~~ IEEE Guide for the Protection of Network Transformers;
- (G) ~~(H)~~ — IEEE Standard C57.12.44-~~2000~~ IEEE Standard Requirements for Secondary Network Protectors;
- (H) ~~(I)~~ — IEEE Standard C62.41.2-~~2002~~ IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits;
- (I) ~~(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;
- (J) ~~(K)~~ — ANSI C84.1-~~1995~~ Electric Power Systems and Equipment - Voltage



Ratings (60 Hertz):

- (K) ~~(L)~~—IEEE Standard 100-2000 IEEE Standard Dictionary of Electrical and Electronic Terms.
- (L) ~~(M)~~—NEMA MG 1-1998, Motors and Small Resources, Revision 3.
- (M) ~~(N)~~—IEEE Standard 519-1992 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems.

~~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 in Section 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.~~

(N) 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;

(O) 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; and



(P) Any other code or standard ordered by the Commission.

### **5.521 Communications Protocols**

The Commission may adopt by order inverter settings and other controls related to communications protocols that will facilitate communication between Projects and Interconnecting Utilities and Transmission Utilities.

### **5.522 Limited-Export and Non-Exporting Projects**

If a Project uses any configuration or operating mode listed below to limit the export of electrical power across the Point of Interconnection, then the Export Capacity is only the amount capable of being exported (not including any Inadvertent Export). To prevent impacts on system safety and reliability, any Inadvertent Export from a Project must comply with the limits in paragraphs (5) or (6), below. The Export Capacity specified in the Application will subsequently be included as a limitation in the Interconnection Agreement. Other means not listed in this section may be used to limit export if mutually agreed upon by the Interconnecting Utility and Applicant.

- (1) Reverse Power Protection: To limit export of power across the Point of Interconnection, a reverse power protective function may be provided. The default setting for this protective function is 0.1% (export) of the service transformer's rating, with a maximum 2.0 second time delay to limit Inadvertent Export.
- (2) Minimum Power Protection: To limit export of power across the Point of Interconnection, an under-power protective function may be provided. The default setting for this protective function is 5% (import) of the Project total Nameplate Rating, with a maximum 2.0 second time delay to limit Inadvertent Export.
- (3) Directional Power Protection: To limit export of power across the Point of Interconnection, a directional power protective function is implemented using a utility grade protective relay. The default setting for this protective function is the Export Capacity value with a maximum 2.0 second time delay to limit Inadvertent Export.
- (4) Relative Distributed Energy Resource Rating: This option requires the Nameplate Rating of the Project, minus any auxiliary load, to be so small in comparison to its host facility's minimum load that the use of additional protective functions is not required to ensure that power will not be exported to the electric delivery system. This option requires the Project capacity to be no greater than 50% of the Interconnection Requester's verifiable minimum host load over the past 12 months. This option is not available for interconnections to area networks or spot networks.
- (5) Configured Power Rating: A reduced output rating utilizing the power rating configuration setting may be used to ensure the Project does not generate power

beyond a certain value lower than the Nameplate Rating.<sup>1</sup>

- (6) Certified Power Control Systems: Projects may use certified power control systems to limit export. Projects using this option must use a power control system and inverter certified per UL 1741 by a Nationally Recognized Testing Laboratory (“NRTL”) with a maximum open loop response time of no more than 30 seconds. NRTL testing to the UL power control system certification requirements decision must be accepted until similar test procedures for power control systems are included in a standard. This option is not available for interconnections to area networks or spot networks.
- (7) Limited Export Using Mutually Agreed-Upon Means: Projects may be designed with other control systems and/or protective functions to limit export and Inadvertent Export to levels mutually agreed upon by the Interconnection Requester and the Interconnecting Utility. The limits may be based on technical limitations of the Interconnection Requester’s equipment or the electric delivery system equipment. To ensure Inadvertent Export remains within mutually agreed-upon limits, the Interconnection Requester must use an internal transfer relay, energy management system, or other customer facility hardware or software. This can also include the utilization of a paired system such as solar and storage to limit the maximum AC output from the site at any given time through charging of the Energy Storage Device at key times.

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<sup>1</sup> The configuration setting corresponds to the active or apparent power ratings in Table 28 of IEEE 1547 – 2018, as described in subclause 10.4. A local Project communication interface is not required to utilize the configuration setting as long as it can be set by other means.



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## **5.500 INTERCONNECTION PROCEDURES FOR PROPOSED ELECTRIC GENERATION RESOURCES AND ENERGY STORAGE DEVICES**

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### **5.501 Applicability**

- (A) This Rule applies to all proposed interconnections of Projects within the State of Vermont that are not lawfully subject to ISO-NE interconnection rules or successor rules approved by FERC. This Rule applies to all Applications filed on or after the effective date of this Rule.
- (B) This rule establishes minimum requirements. The Commission may adopt additional requirements for the interconnection of Projects by order pursuant to Public Act No. 61, § 7 (2006 Vt., Adj. Sess.).



## 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 Project.
- (2) **Application** – a request for interconnection initiated by the submission of an Application Form provided by the Commission for the interconnection of Projects, the Application Fee where required, and any other information required by this Rule.
- (3) **Application Fee** – The fee paid to the interconnecting utility to review an Application. for Projects with a Nameplate Capacity greater than 150 kW, the fee is \$600 or the amount specified in an approved Interconnecting Utility tariff. Unless provided for in an approved Interconnecting Utility tariff, there is no fee for Projects with a Nameplate Capacity of less than or equal to 150 kW. The Application Fee is non-refundable unless the Application is withdrawn within 7 days of submittal. The Interconnecting Utility may require electronic payment of the Application Fee.
- (4) **Application Forms** – the forms adopted by the Commission for Projects to request interconnection with the Interconnecting Utility. The Application Forms may be amended by the Commission from time to time. Application Forms may be submitted electronically to the Interconnecting Utility.
- (5) **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.
- (6) **Commission** – the Vermont Public Utility Commission.
- (7) **Disconnect (verb)** – to isolate a circuit or equipment from a source of power. If isolation is accomplished with a solid-state device, “disconnect” means to cease the transfer of power.
- (8) **Disconnection** – the state of a circuit or equipment being disconnected from a source of power.
- (9) **Distribution Level Study** – a System Impact Study conducted at the distribution level.
- (10) **Emergency** – a situation in which continued interconnection of a Project is imminently likely to result in significant disruption of service or endanger life or property.
- (11) **Energy Storage Device** – a device that captures energy produced at one time, stores that energy for a period of time, and delivers that energy as electricity for use at a future time.
- (12) **Export Capacity** – the maximum Nameplate Rating of a Project in alternating current (AC), except where such capacity is limited by any of the methods of limiting electrical

export listed in Section 5.522 whereby the Export Capacity is the net capacity as limited through the use of such methods (not including Inadvertent Export). For example, if a solar facility paired with a storage facility were proposed with combined output limited to specified MW(s) of export, the specified MW(s) of output would be the Export Capacity.

- (13) Facilities Study – any study or studies performed by an Interconnecting Utility or a designated third party to determine the cost of Interconnection Facilities or System Upgrades that are necessary for interconnection of the Project.
- (14) Facilities Study Report – contains the results of the Facilities Study and is transmitted to the Interconnection Requester in accordance with Section 5.514.
- (15) Feasibility Study – any study or studies performed by an Interconnecting Utility or a designated third party consisting of initial engineering analyses regarding the feasibility of interconnecting the Project.
- (16) Feasibility Study Report – contains the results of the Feasibility Study, and other information required by this Rule.
- (17) FERC – the Federal Energy Regulatory Commission.
- (18) Flicker – the subjective impression of fluctuating luminance caused by voltage fluctuations.
- (19) Frequency Ride Through – the ability of a Project 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 Projects in the Interconnecting Utility’s service territory on a comparable basis.
- (20) Generation Resource – a facility that produces electric energy from other energy sources.
- (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 electric 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 Project.
- (24) Inadvertent Export - the unscheduled export of power from a Project, exceeding a specified magnitude and for a limited duration, generally due to fluctuations in load-following behavior.
- (25) Interconnection Agreement – an agreement between an Interconnecting Utility and Interconnection Requester regarding the interconnection and parallel operation of a Project. The Interconnection Agreement is accompanied by or includes Technical Requirements and Operator Protocols.
- (26) Interconnection Facilities – all facilities and equipment between the Project and the Point of Interconnection, including any modification, additions, or upgrades that are necessary to physically and electrically interconnect the Project to the Interconnecting Utility’s distribution or transmission system. Interconnection Facilities are sole-use facilities and do not include System Upgrades.
- (27) Interconnection Queue – the list of Applications for the interconnection of Projects, in order based on the date-and-time stamp of complete Applications, maintained by each Interconnection Utility.
- (28) Interconnection Requester – person or entity who proposes to interconnect a Project with an Interconnecting Utility.
- (29) ISO-NE – ISO New England, Inc.
- (30) Material Modification – means a modification that has a material impact on the cost or timing of processing an Application with a later queue priority date or a change in the Point of Interconnection. A Material Modification does not include, for example, (a) a change of ownership of a Project, (b) a change or replacement of equipment that is a like-kind substitution in size, ratings, impedances, efficiencies, or capabilities of the equipment specified in the original Application, or (c) a reduction in the output of the Project of 10% or less.
- (31) Nameplate Rating – means the sum total capacity of all of a Project’s constituent units, regardless of whether it is limited by any of the methods listed in Section 5.522.
- (32) Non-Jurisdictional Affected Utility – a utility other than a Vermont distribution utility that operates an Affected System and will need to provide study support.
- (33) Operator Protocols – an agreement between the Interconnection Requester and the Interconnecting Utility pertaining to the operation and maintenance of the Project.
- (34) Point of Interconnection – the point on the Interconnecting Utility’s existing system to



which the Interconnection Requester proposes to interconnect.

- (35) PUC – the Vermont Public Utility Commission.
- (36) Pre-Application Fee – a Pre-Application Request includes a Pre-Application Fee. The fee is \$300 or the amount specified in an approved utility tariff.
- (37) Pre-Application Report – information about the application process and the point of proposed interconnection to the utility system.
- (38) Pre-Application Request – a request from the Interconnection Requester for a Pre-Application Report.
- (39) Preliminary Review – the initial process for establishing an interconnection for certain qualifying Projects in accordance with Section 5.512 of this Rule.
- (40) Preliminary Screening Criteria – the screening criteria for Projects set forth in this Rule. These criteria are included in the Preliminary Review but will also be analyzed further in Feasibility and System Impact Studies as needed.
- (41) Project – a Generation Resource or Energy Storage Device or an electrically connected combined Generation Resource and Energy Storage Device.
- (42) 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.
- (43) Scoping Meeting – an optional meeting between the Interconnecting Utility and the Interconnection Requester to discuss the conclusion of the Preliminary Review, and how to proceed with the interconnection request.
- (44) Site Control – the ability of the Applicant to control the Project site documented by one of the following: (1) fee simple title to such real property; (2) valid written leasehold or easement interest for such real property; (3) a legally enforceable written option with all terms stipulated, including “option price” and “option term,” unconditionally exercisable by the proponent or its assignee, to purchase or lease such real property or hold an easement for such property; or (4) a duly executed contract for the purchase and sale of such real property. Site control must be unconditional and continuous throughout the process, or a Project will be removed from the queue.
- (45) Smart Inverter – a Project’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.

- (46) Study Agreement – an agreement between the Interconnecting Utility and Interconnection Requester regarding the terms and conditions of the conduct of any study (e.g., Facilities Study Agreement) proposed by the Interconnecting Utility in order to proceed with the interconnection review process.
- (47) System Impact Study – any study or studies performed by an Interconnecting Utility or a designated third party to ensure the safety, reliability, and stability of the electric power system with respect to the interconnection of Projects.
- (48) System Impact Study Report – contains the results of the System Impact Study, and other information required by this Rule.
- (49) 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 Project. System Upgrades do not include Interconnection Facilities.
- (50) 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 Project. 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 Project will reduce the quality of service on the Interconnecting Utility’s system.
- (51) This Rule – Commission Rule 5.500: Interconnection Procedures for Proposed Electric Projects.
- (52) Transmission Level Study – a System Impact Study conducted at the transmission level.
- (53) Voltage Ride Through – the ability of a Project 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 Projects in the Interconnecting Utility’s service territory on a comparable basis.
- (54) VELCO – Vermont Electric Power Company, which operates the transmission system in Vermont.

### **5.503 General Procedures**

- (A) All studies conducted pursuant to this Rule must model all Projects at their Export Capacity, including any limitations on export imposed by means identified in Section

5.522 or at some other reasonable and expected capacity determined by the Interconnecting Utility.

- (B) For Projects that include an Energy Storage Device, all studies conducted pursuant to this Rule must consider the operational characteristics unique to Energy Storage Devices that can minimize impacts on system stability and reliability. The Interconnecting Utility may impose inverter settings or operating regimes relating to Energy Storage Devices that ensure system stability and reliability.
- (C) All studies must consider all Projects 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.
- (D) After providing an opportunity for comment to the Vermont Department of Public Service, electric utilities, and other affected parties, the Commission 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 on the terms of an agreement to be reached under this Rule, either party may petition the Commission for resolution of the dispute.
- (E) The time deadlines specified in this Rule, for utilities governed by this Rule, are maximum times unless the Interconnecting Utility and the Interconnection Requester make a mutual agreement to extend a deadline, provided that such an extension would not affect lower queued Projects. To avoid unnecessary delay, the Interconnecting Utility is encouraged to complete each task in less time than allotted, to the extent feasible.
- (F) Different time deadlines may have to be instituted for studies required by Non-Jurisdictional Affected Utilities. These utilities may require studies, including but not limited to Transmission Level Studies (i.e., ISO-NE), but their timelines to provide such studies may not be governed by these rules or the Commission. By way of example and not limitation, when a Project Nameplate Rating is greater than 1 MW, the Interconnecting Utility is required to submit a generator notification form to ISO-NE and ISO-NE may determine that additional study is necessary.
- (G) The Interconnecting Utility may contract with consultants, including contractors acting on behalf of the Interconnecting Utility, to perform the activities required under a Study



Agreement. The third-party entities contracted with must be licensed appropriately for each area of study.

#### **5.504 Group and Serial Studies**

**(A)** An Interconnecting Utility may propose for Commission approval a tariff establishing procedures for group studies. The tariff must include standards and procedures for the following issues:

- (1) Group formation, including the timing, geographic scope, and requirements for participation;
- (2) How to conduct group studies, including phases, duration, group and individual impact assessments, and distribution and transmission impacts;
- (3) Group retention, including managing group attrition, (e.g., phases, deposits, site control) and the impact of Project modifications;
- (4) Cost allocation, including study costs and upgrade costs; and
- (5) Transitioning to a group study process, including impact on Projects already in the queue.

**(B)** If the number and timing of interconnection requests for a specific area is such that interconnection requests directly affect each other, the Interconnecting Utility may study Projects serially. In the case of serial review, the Interconnecting Utility will notify the Interconnection Requester that its review of the Project will be on hold until the Interconnecting Utility has completed its study or review of Projects ahead of the Interconnecting Requester in the Interconnection Queue.

#### **5.505 Optional Pre-Application Report**

**(A)** Upon receipt of a completed Pre-Application Report Request and the Pre-Application Fee, the Interconnecting Utility must provide the pre-application data described in this section within 14 days. The Pre-Application Report Request must include a proposed Point of Interconnection, generation technology, storage technology, Project Nameplate Rating, Project Export Capacity, and fuel source. The proposed Point of Interconnection must 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 Export Capacity (MW) of the substation or circuit likely to serve the proposed site;

- (2) Allocated Export Capacity (MW) of the substation or circuit likely to serve the proposed site;
  - (3) Queued Export Capacity (MW) of the substation or circuit likely to serve the proposed site;
  - (4) Available Export Capacity (MW) of the substation or bank and circuit most likely to serve the proposed site;
  - (5) Nominal distribution voltage of the circuit most likely to serve the proposed site;
  - (6) Approximate circuit distance between the proposed site and the substation;
  - (7) Hourly load profile by substation and transformer, at the most specific granularity available (e.g., if an 8760 hour profile is not available, then provide a 576 hour profile);
  - (8) Relevant line section(s) peak load estimate, and minimum load data, when available;
  - (9) Number of protective devices and number of voltage regulating devices between the proposed site and the substation;
  - (10) Whether or not three-phase power is available at the site and distance from three-phase service;
  - (11) Limiting conductor rating from proposed Point of Interconnection to the substation;
  - (12) Based on the 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; and
  - (13) Any other information deemed relevant by the Interconnecting Utility.
- (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. If the utility cannot complete all or some of a Pre-Application Report due to lack of available data or need for additional analysis, 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 Interconnection Requester understands that:
- (1) The existence of “Available Generating 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 Interconnecting Utility must, in good faith, provide Pre-Application Report data that represents the best available information at the time of reporting.

### **5.506 Application**

- (A) All Projects must complete the appropriate Application Form as follows:
- (1) For Projects with a Nameplate Rating up to 150 kW;
  - (2) For Projects greater than (>) 150 kW; or
  - (3) As otherwise provided by the Commission.
- (B) All Projects must provide:
- (1) Information regarding certification or Underwriters Laboratory listing of the Interconnection Requester's Project;
  - (2) Information regarding inverter settings, including inverter data sheets;
  - (3) For any Energy Storage Device, the proposed use case(s) or operational requirements and restrictions under the Project should be studied.
- (C) Projects with a Nameplate Rating greater than 150 kW including the combined Nameplate Rating of any Generation Resource and Energy Storage Device must provide:
- (1) The Application Fee;
  - (2) Documentation of Site Control;
  - (3) An electrical one-line diagram signed and stamped by a licensed professional engineer ; and
  - (4) A site plan. The site plan should show the location of the facility and location of the facility equipment (to the extent that it is known).

### **5.507 Interconnection Queue**

- (A) Interconnection Queue. Each interconnecting utility must maintain an Interconnection



Queue of all proposed Projects.

- (B) Interconnection Queue position. The Interconnecting Utility must assign each Project a position in the Interconnection Queue based on the date-and-time stamp of the Interconnection Requester's complete Application.
- (C) Certain Interconnection Queue information available online. The Interconnecting Utility must make its Interconnection Queue available online, redacted to include only the Project type, queue position, location by town, interconnection circuit, fuel type (including renewable sources), date of interconnection request, expected operation date, study status, Nameplate Rating of each energy resource included in the Project, and Export Capacity of proposed Projects.

#### **5.508 Notice of Applications**

- (A) Notice to Affected Systems. The Interconnecting Utility must notify the Affected System's utility in accordance with the same interconnection notification protocols that would apply if the Application were subject to FERC jurisdiction.
- (B) Notification to VELCO. To assess any transmission-level impacts and to coordinate any needed transmission-level interconnection studies, the Interconnecting Utility must send a copy of the Application once deemed complete to VELCO for all proposed Projects greater than 1 MW in Nameplate Rating. Within 14 days of receipt, VELCO must forward the Application to ISO-NE to determine whether Transmission Level Studies are required. VELCO will notify the Interconnecting Utility within 14 days of receipt of ISO-NE's determination. VELCO's response will include date of submittal to ISO-NE for information. If requested by VELCO, the Interconnecting Utilities will provide a copy of the complete Application for Projects smaller than 1 MW Nameplate Rating.
- (C) Notification to distribution utilities providing subtransmission services. To assess any subtransmission-level impacts and to coordinate any needed subtransmission-level studies, the Interconnecting Utility will notify the distribution utility providing subtransmission service of any proposed Projects with a Nameplate Rating greater than 150 kW.

#### **5.509 Cost Allocation**

- (A) The date-and-time stamp of the Application will be used to determine the cost responsibility for any interconnection studies or System Upgrades necessary to accommodate the interconnection.
- (B) For group review of multiple Applications, the Interconnecting Utility may allocate costs based on a methodology specified in an approved utility tariff.

#### **5.510 Procedure for Projects with a Nameplate Rating of 500 kW or Less**

- (A) The Interconnecting Utility must notify the Interconnection Requester within 7 days of the receipt of the Application if the Application is incomplete. The notification must include 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.
- (B) If the Interconnecting Utility determines that there are interconnection issues, the Interconnecting Utility must notify the Interconnecting Requester within the following timeframes:
  - (1) In the case of a Project with an Export Capacity of 15 kW or less, the 15th day following the date of receipt of a complete Application; and
  - (2) In the case of a Project with an Export Capacity greater than 15 kW and no more than 500 kW, the 31st day following the date of receipt of the complete Application.
- (C) For Projects that have an Export Capacity not greater than 15 kW and a Nameplate Rating not greater than 50 kW, the following screening criteria will be utilized:
  - (1) The proposed Project must meet current requirements per Section 5.520 regarding inverter and Project equipment package certification;
  - (2) The proposed Point of Interconnection is not a transmission line; and
  - (3) The aggregate Export Capacity, including the Export Capacity of the proposed Project, on a distribution circuit will not cause any customer equipment or distribution equipment, including but not limited to conductors, distribution transformers, and fuse cutouts, to exceed the equipment's thermal ratings.
- (D) For Projects that have an Export Capacity greater than 15 kW or a Nameplate Rating greater than 50 kW, the Interconnecting Utility will review the screening criteria in 5.512(D). If the Interconnecting Utility determines that the interconnection raises system issues, the Interconnecting Utility must notify the Interconnecting Requester in writing within the timeframes set forth in (B) above. The Interconnecting Utility's letter must include a recommendation as to how the interconnection issues could be resolved by the Interconnection Requester or state whether additional analysis is required.
- (E) For Projects with a Nameplate Rating greater than 150 kW, the Interconnecting Utility may require electronic payment of the Application Fee. If the Interconnecting Utility allows the Application Fee to be paid by check, the Interconnecting Utility must wait until the fourteenth day following receipt of the Application for the Application Fee to arrive. If the Application Fee has not arrived in that time period, the Application will be deemed incomplete.
- (F) If additional interconnection analysis is required, the applicable procedures set forth below

in this Rule will be followed.

- (G) The Interconnection Requester must notify the Interconnecting Utility immediately of any change in the information provided in the Application that was determined to be complete, including but not limited to the loss of site control.

#### **5.511 Procedure for Projects with a Nameplate Rating Greater than 500 kW**

- (A) The Interconnecting Utility must notify the Interconnection Requester of receipt within 7 days of receiving the Interconnection Requester's Application.
- (B) The Interconnecting Utility must notify the Interconnection Requester within 14 days of the receipt of the Application as to whether the Application is complete or incomplete.
  - (1) If the Application is incomplete, the Interconnecting Utility must 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 Interconnecting Utility will have 14 days to review the revised Application for completeness.
  - (2) The Interconnecting Utility may require electronic payment of the Application Fee. If the Interconnecting Utility allows the Application Fee to be paid by check, the Interconnecting Utility must wait until the 14th day following receipt of the Application for the Application Fee to arrive. If the Application Fee has not arrived in that time period, the Application will be deemed incomplete.
  - (3) Complete Applications reviewed pursuant to this subsection will be reviewed using the procedures specified in this Rule.
  - (4) The Interconnection Requester must notify the Interconnecting Utility immediately of any change in the information provided in the Application that was determined to be complete, including but not limited to the loss of site control.

#### **5.512 Preliminary Review Screening Process**

- (A) Within 30 days after an Application is determined to be complete, the Interconnecting Utility must perform a review of the Application under the Preliminary Review screening criteria set forth below, and must notify the Interconnection Requester of the conclusion and determination if additional study is required. However, the Preliminary Review process can be waived if the Interconnecting Utility and Interconnecting Requester mutually agree to move directly to the study process.
- (B) The Preliminary Review is an analysis by the Interconnecting Utility of the Preliminary



Screening Criteria in Section 5.512(D) and is performed with readily available data and models. If the Interconnecting Utility is unable to perform a Preliminary Review without extensive data acquisition, model development, load flow analysis, or short circuit analysis, then the Preliminary Screening Criteria are considered failed.

- (C) On the basis of the Preliminary Review, if the Interconnecting Utility concludes that additional study is required, the Interconnecting Utility must convey these concerns in writing to the Interconnection Requester within the required timeframes.
- (D) Preliminary Screening Criteria:
  - (1) The proposed interconnection point is on a distribution line.  
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  - (2) The aggregated Export Capacity, including the capacity of the Project, on a distribution circuit will not cause any distribution equipment, including but not limited to conductors, substation transformers, line stepdown transformers, substation breakers, regulators, fuse cutouts, and line reclosers, or customer equipment on the system, to exceed the equipment's thermal ratings.
  - (3) The proposed Project's Nameplate Rating, in aggregation with other Generation Resource Nameplate Ratings on the distribution circuit, will 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 will the Project be proposed for a circuit that already exceeds 87.5% of the short-circuit interrupting capability.
  - (4) The proposed Project will have no adverse impact on existing protection coordination.
  - (5) The proposed Project, in aggregation with other Export Capacity on the distribution circuit, will not result in potential for Transmission Ground Fault Overvoltage (TGFOV).
  - (6) The proposed Project, in aggregation with other Export Capacity on the distribution circuit, will not cause unintentional islanding. The proposed Project does not require additional unintentional islanding protection.
  - (7) For interconnection of a proposed single-phase or effectively grounded three-phase Project where the primary distribution system is three-phase, four-wire, the Project will be connected line-to-neutral. For interconnection of a proposed single-phase or three-phase Project where the primary distribution system is three-phase, three-wire, the Project will be connected line to line.
  - (8) The proposed Project is not located in an area where there are known or posted transient stability limitations to Projects located in the general electric vicinity,

including but not limited to known harmonic issues.

- (9) The proposed Project will not affect the Interconnecting Utility's ability to maintain voltages consistent with Standard ANSI C84.1.
  - (10) Voltage drop caused by starting Generation Resource is within acceptable limits, meaning that inrush current caused by the startup of the proposed Project 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 Project 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 Projects.
  - (11) The Interconnection Requester affirms that the proposed Project meets the applicable codes and standards of Section 5.520 or is a certified equipment package under Section 5.519.
  - (12) Flicker caused by the proposed Project must comply with IEEE Standard 1547.
  - (13) For Projects that will not export to the grid, the voltage drop caused by Inadvertent Export is within acceptable limits, meaning that voltage change at the primary level caused by the loss of load at the Project point of interconnection is less than 3%.
  - (14) Identification of affected Vermont utilities and/or Non-Jurisdictional Affected Utilities. These entities must identify no adverse impact on their Affected Systems.
- (E) If the proposed interconnection passes the Preliminary Screening Criteria, the interconnection request must be approved, and the Application will not require additional study. Approval of an Application must be provided to the applicant in writing. For Projects greater than 150 kW in capacity, the Interconnecting Utility must provide the Interconnection Requester with an executable Interconnection Agreement within 7 days after the completion of the Preliminary Review. Projects with a Nameplate Rating of less than 150 kW may interconnect without an Interconnection Agreement unless operating restrictions or requirements are identified. For Projects with a Nameplate Rating of less than 150 kW with operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must provide the Interconnection Requester with an executable Interconnection Agreement within 7 days after the completion of the Preliminary Review.
- (F) If the Project fails the Preliminary Screening Criteria, but the Interconnecting Utility determines that the Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards, the Interconnecting Utility must notify the Interconnection Requester in writing that the Application is approved. If the Project is greater than 150 kW in Nameplate Rating or has operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must provide an

executable Interconnection Agreement within 7 days. The Interconnecting Utility must provide a technical justification in the Preliminary Review conclusion regarding why the proposed Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards.

- (G) If the Preliminary Review identifies additional facilities or system upgrades that are not of a routine and uncomplicated nature and are needed to mitigate potential adverse impacts on the electric system, and if neither a Feasibility Study or System Impact Study is required, the Interconnecting Utility must send the Interconnection Requester an executable Facilities Study agreement (if required), which must include an outline of the scope of the study and a good-faith estimate of the cost to perform the study, within 7 days after the Interconnecting Utility provides the Preliminary Review conclusion.
- (H) If the Project fails the Preliminary Screening Criteria, and the Interconnecting Utility does not or cannot determine from the initial review that the Project may nevertheless be interconnected consistent with safety, reliability, and power quality standards, and unless the Interconnection Requester is willing to consider minor modifications or further study, the Interconnecting Utility must 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 additional study, the Application will be considered withdrawn.
- (I) 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 Preliminary Screening Criteria. The purpose of the Scoping Meeting may be to review existing studies relevant to the Interconnection Requester's Application.
- (J) At the time of notification of the Interconnecting Utility's determination, or at the Scoping Meeting, the Interconnecting Utility must:
  - (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 and the Project is greater than 150 kW in Nameplate Rating or has operating restrictions or requirements imposed as part of the interconnection, the Interconnecting Utility must 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) 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 Project under the study processes described in this Rule.

(K) 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.

### **5.513 Feasibility Study**

(A) In cases where the Interconnecting Utility determines that a Feasibility Study is necessary, the Interconnecting Utility must provide the Interconnection Requester with an executable Feasibility Study agreement that includes an outline of the scope of the study and a good-faith estimate of the cost to perform the study. The executable Feasibility Study agreement will be provided by the Interconnecting Utility within 7 days after the close of the Scoping Meeting, or the date of the decision not to hold a Scoping Meeting. 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% of estimated Feasibility Study costs or \$1,000.

(B) A Feasibility Study must 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.) that will be exceeded as a result of the Project;

(2) Initial identification of any thermal overload or voltage limit violations on transmission or distribution systems resulting from the Project;

(3) Initial review of islanding, grounding requirements, and system protection; and

(4) Identification of Affected Utilities and/or Non-Jurisdictional Affected Utilities.

(C) A Feasibility Study must model the impact of the Project 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 Project is being installed.

(D) A Feasibility Study must 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 must rely, to the extent reasonably practicable, on existing studies of recent vintage. The Interconnection Requester will not be charged for such existing studies; however, the Interconnection Requester is 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

- (1) Once a Feasibility Study is completed, the Interconnecting Utility must 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 must 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 5.512(A).
  - (2) The Feasibility Study Report must 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 must provide the applicable Study Agreement or Interconnection Agreement to the Interconnection Requester.
- (G) If a Feasibility Study shows no potential adverse impacts on the electric system, and no additional facilities are required or the only additional facilities are not transmission voltage equipment or are of a routine and uncomplicated nature for the Interconnecting Utility (e.g., Projects covered by existing tariffs, fuses, relay settings), the Interconnecting Utility must send the Interconnection Requester written approval of the Application and, in the case of Projects with a capacity greater than 150 kW in Nameplate Rating or with operating restrictions or requirements imposed as part of the interconnection, an executable Interconnection Agreement within 14 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 that need a Facilities Study, the Interconnecting Utility must 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 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 will proceed to the System Impact Study, and the Interconnecting Utility must 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 within 7 days of the delivery of the Feasibility Study. The executable System Impact Study agreement must specify whether it and the cost estimate are for a Distribution Level Study, Transmission Level Study, or both. Additional study is not required if the adverse impacts are minor, routine in nature, or easily mitigated.

- (J) In instances where a Feasibility Study shows potential impacts on the transmission system or a Non-Jurisdictional Affected Utility, within 7 days following transmittal of the Feasibility Study Report, the Interconnecting Utility must notify the Affected Systems. Affected Systems may require performance of separate System Impact Studies.

#### **5.514 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 Preliminary Review, Scoping Meeting, and/or Feasibility Study. If the Preliminary Review, Scoping Meeting, or Feasibility Study identifies potential adverse impacts on the distribution system, a Distribution Level Study must be performed. If the Scoping Meeting, Feasibility Study, or Distribution Level Study identifies potential adverse impacts on the transmission system, a Transmission Level Study must be performed.
- (1) The Distribution Level System Impact Study must 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, grounding reviews, and the impact on system operation, as necessary.
- (2) The Transmission Level System Impact Study must 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 is to identify and specify the impacts on electric transmission and/or distribution system stability and reliability that would result if the proposed Project were interconnected without Project modifications or system modifications, focusing on the adverse impacts identified in the Preliminary Review, Scoping Meeting, or Feasibility Study, and to identify and study any additional potential impacts.
- (D) If the Project being reviewed includes an Energy Storage Device, the use case(s) for the Energy Storage Device will be included in the review, and the operation of the storage system will be limited to those use cases studied, which will be specifically identified in the Interconnection Application. Should the applicant want to change or add use cases for the Project, notice must be provided to the Interconnecting Utility and further study may be required and the changes may be considered a Material Modification
- (E) System Impact Study Report



- (1) Once a System Impact Study is completed, the Interconnecting Utility must 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 must 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. ISO-NE or Affected Systems may require performance of a separate System Impact Study that may not necessarily be governed by this Rule.
  - (2) The System Impact Study Report must 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. The System Impact Study must provide a list of upgrades that are required as a result of the Interconnection Requester's Application and cost responsibility. The System Impact Study Report must be provided with a Facilities Study agreement or Interconnection Agreement.
- (F) 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 must, 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. 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 must be completed and transmitted to the Interconnection Requester within 60 days of the receipt of the supplemental System Impact Study agreement.
- (G) 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 must notify the Affected System's utility.
- (H) 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. An Affected System's utility must participate in the study and

provide all information necessary to prepare the study. Affected Systems may require performance of a separate System Impact Study.

- (I) 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, the Interconnecting Utility must send the Interconnection Requester written approval of the Application and, in the case of Projects with a Nameplate Rating greater than 150 kW or with operating restrictions or requirements imposed as part of the interconnection, an executable Interconnection Agreement within 21 days after delivery of the System Impact Study Report.
- (J) If a System Impact Study shows that additional facilities other than those that are routine and uncomplicated in nature for the utility (e.g., Projects covered by existing tariffs, fuses, relay settings) are required, the Interconnecting Utility must 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 within 7 days after delivery of the System Impact Study Report.

#### **5.515 Facilities Study**

- (A) 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 must 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, Interconnection Facilities' design will be reviewed, and modified as necessary by the Interconnecting Utility, before acceptance under the provisions of the Facilities Study agreement. If the parties agree to separately arrange for design and construction, the Interconnecting Utility must make sufficient information available to allow the Interconnection Requester to obtain an independent design and cost estimate for any necessary facilities. This provision does not prohibit the Interconnecting Utility and the Interconnection Requester from reaching agreement to protect information that one or the other deems confidential and does not require the Interconnecting Utility to disclose information that it is otherwise obligated 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 must 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 must be completed and a Facilities Study Report transmitted to the Interconnection Requester within 30 days. In either event, the Facilities Study Report must include a good-faith estimate of the cost of any recommended System Upgrades or Interconnection Facilities.

- (E) The Interconnecting Utility must send the Interconnection Requester an executable Interconnection Agreement within 21 days after delivery of the Facilities Study Report.

#### **5.516 Terms Applicable to All Interconnection Applications**

- (A) The Interconnection Requester is responsible for meeting all applicable codes and standards of Section 5.519 unless interconnection is accomplished by a certified equipment package under Section 5.518.
- (B) Interconnection Agreement. Except in the case of Projects that are allowed under this Rule to interconnect without a written agreement, upon completion of the necessary studies, if any, the Application must be approved and the Interconnecting Utility must provide the Interconnection Requester with 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 Project. The Interconnection Requester's Application will be deemed withdrawn and the Interconnection Requester will 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 Project, 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 any studies and the return of the executed Interconnection Agreement, (1) 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, or (2) 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) The Interconnection Agreement must require that Voltage Ride Through capability, Frequency Ride Through capability, and Smart Inverter functionality comply with the standards required by this Rule. If mutually agreed upon by the Interconnecting Utility and Interconnection Requester, the Interconnection Agreement must require enhanced Voltage Ride Through, Frequency Ride Through, or other Smart Inverter functionality, consistent with the standards required by this Rule and with Good Utility Practice.
- (D) Reasonable Efforts. The Interconnecting Utility must 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 in this Rule, it must 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 must maintain records, subject to audit, of all Project 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 will 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 will be borne by the Interconnecting Utility.

- (E) Material Modifications 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, which will result in loss of queue position and will require submission of a new Application.
- (F) 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 will not affect an Interconnection Requester's Application with regard to consideration for interconnection, nor position in an Interconnection Queue.
- (G) Interconnection Metering. Any metering necessitated by the interconnection of the Project must be installed at the Interconnection Requester's expense in accordance with the Interconnecting Utility's reasonable specifications.
- (H) Commissioning. Commissioning tests of an Interconnection Requester's installed equipment must be performed pursuant to applicable codes and standards as identified by the parties in the Interconnection Agreement. The Interconnecting Utility must 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. The Interconnecting Utility must electronically record the results of the commissioning tests, including the control settings, momentary cessation settings, Voltage and Frequency Ride Through settings, and the vintage of the applicable standards.
- (I) One-Line Diagram. In the case of Projects with a Nameplate Rating greater than 150 kW, the Interconnection Requester must, within 30 days of the Project in-service date, supply to the Interconnecting Utility an "as built" one-line diagram of what was installed during the construction process. Such diagrams must be stamped by a professional engineer. Any deviation from the Application not previously approved by the Interconnecting Utility must be addressed pursuant to the Interconnection Agreement.
- (J) Notification Before 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 must, before exceeding a previously provided cost estimate, promptly notify the Interconnection Requester if such costs are likely to exceed the previously provided estimate and must provide the Interconnection Requester with a revised total estimated cost for the study. The Interconnecting Utility must 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 Interconnection Requester is responsible for all such costs incurred to date and the Application will be deemed withdrawn.

- (K) 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 must book this income separately.
- (L) Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Project, the Interconnection Requester must bear the entire cost of such facilities. Within 42 days of final collection of all material, labor, contractor, permitting, and other costs incurred by the Interconnecting Utility in constructing, testing, and commissioning the Interconnection Facilities and System Upgrades, the Interconnecting Utility must provide the Interconnection Requester with an invoice. The Interconnection Requester must pay all such costs that exceed the deposit within 42 days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the Interconnecting Utility must return such excess, without interest, within 42 days of receipt of the invoice or resolution of any dispute.
- (M) Market Participation. As part of the Application, the Interconnecting Requester must notify the Interconnecting Utility whether the Project will be participating in the wholesale electricity markets, including whether the Project will be aggregated with other resources to participate. If market participation or use cases change after a Project has completed studies or received an Interconnection Agreement, the Interconnecting Utility must be notified and additional review may be required.
- (N) Transmission-level studies. In the case of Projects with a Nameplate Rating greater than 1 MW, the Interconnecting Utility must coordinate with VELCO to determine whether the aggregate amount of Projects has reached the saturation level requiring a transmission-level cluster study. In the event such studies are needed, the Interconnecting Utility will notify the affected Interconnection Requesters. Those Projects included in the cluster study will follow the study process laid out in this Rule, except that the scope of the System Impact Study will include transmission-level studies as directed by ISO-NE. Typically, such studies will include steady state, short circuit, stability, and PSCAD studies.

#### **5.517 Cost Responsibility and Cost Reconciliation**

- (A) Costs of facilities and cost responsibility. Where additional facilities, Interconnection Facilities, or System Upgrades are required to permit the interconnection of a Project, the Interconnecting Utility must provide a detailed, good-faith estimate of the costs, and the Interconnection Requester must pay the full amount of the estimate or, if such costs are covered by an Interconnection, Line Extension, or other tariff, said charges must be billed and paid pursuant to the tariff.

- (B) Within 21 days of submittal of a study report, the Interconnecting Utility must provide to the Interconnection Requester an invoice that includes a breakdown of the actual cost to perform the study. The Interconnection Requester must pay the full cost of the study. The Interconnecting Utility must 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 study exceeds the deposit, the Interconnection Requester must pay the invoiced amount (cost of the 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 study, the Interconnecting Utility must refund such excess, without interest, within 21 days of submittal of the study report.
- (C) Costs of transmission cluster studies. Where additional transmission-level cluster studies are required to determine any aggregate transmission impacts, the Interconnecting Utility must provide the Interconnection Requester with a detailed, good-faith estimate of the study costs. The Interconnection Requester must pay the full amount of the estimate or, if such costs are covered by an Interconnection Agreement or other tariff, said charges will be billed and paid pursuant to the tariff.

#### **5.518 Disconnection**

- (A) The following requirements govern the disconnection from the electrical system of a Project that was interconnected under these procedures. These requirements apply to such Projects 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 is not 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 Project, the Interconnecting Utility must notify the Interconnection Requester within 24 hours after the disconnection.
  - (1) If the Emergency is not caused by the Project, the Interconnecting Utility must assist the Interconnection Requester with reconnecting the Project upon cessation of the Emergency.
  - (2) If the Emergency is caused by the Project, the Interconnecting Utility must communicate the nature of the problem to the Interconnection Requester within 5 days and must 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 must file a disconnection petition with the Commission. In any proceeding on such a petition, the Interconnecting Utility bears the burden of proof to demonstrate the reasonableness of disconnection.



- (D) Non-Emergency disconnections must follow the same procedure as Emergency disconnections outlined above, except that the Interconnecting Utility must give written notice of the disconnection no earlier than 10 days and no later than 7 days before the first date on which disconnection of the Project may occur. Such notice must 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 Project 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 Project should be reconnected to the Interconnecting Utility. In the event of the filing of such a complaint, the Interconnecting Utility bears the burden of proof to demonstrate the reasonableness of disconnection.
- (F) A Project may be disconnected for exceeding the Export Capacity applied for and studied during the interconnection process, if such excess Export Capacity is not remedied within a reasonable time, after notice of such excess export is given by the Interconnecting Utility.

#### **5.519 Certification of Project Equipment Packages**

- (A) A Project equipment package will 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 will 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 5.519, below. An "equipment package" includes all interface components, including switchgear, inverters, or other interface devices, and may include an integrated Project. If the equipment package has been tested and listed as an integrated package that includes a Generation Resource, it does 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 will 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.

### 5.520 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 will 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.

- (A) IEEE 1547 Series of Standards for Interconnecting Distributed Resources with Electric Power Systems as adopted;
- (B) UL 1741 Inverters, Converters, and Controllers for Use in Independent Power Systems;
- (C) NFPA 70 National Electrical Code;
- (D) IEEE Standard C37.90.1 IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems;
- (E) IEEE Standard C37.90.2 IEEE Standard Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers;
- (F) IEEE Standard C37.108 IEEE Guide for the Protection of Network Transformers;
- (G) IEEE Standard C57.12.44 IEEE Standard Requirements for Secondary Network Protectors;
- (H) IEEE Standard C62.41.2 IEEE Recommended Practice on Characterization of Surges in Low Voltage (1000V and Less) AC Power Circuits;
- (I) IEEE Standard C62.45 IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits;
- (J) ANSI C84.1 Electric Power Systems and Equipment - Voltage Ratings (60 Hertz);
- (K) IEEE Standard 100 IEEE Standard Dictionary of Electrical and Electronic Terms.
- (L) NEMA MG 1 Motors and Small Resources;

- (M) IEEE Standard 519 IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems;
- (N) 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;
- (O) 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; and
- (P) Any other code or standard ordered by the Commission.

### **5.521 Communications Protocols**

The Commission may adopt by order inverter settings and other controls related to communications protocols that will facilitate communication between Projects and Interconnecting Utilities and Transmission Utilities.

### **5.522 Limited-Export and Non-Exporting Projects**

If a Project uses any configuration or operating mode listed below to limit the export of electrical power across the Point of Interconnection, then the Export Capacity is only the amount capable of being exported (not including any Inadvertent Export). To prevent impacts on system safety and reliability, any Inadvertent Export from a Project must comply with the limits in paragraphs (5) or (6), below. The Export Capacity specified in the Application will subsequently be included as a limitation in the Interconnection Agreement. Other means not listed in this section may be used to limit export if mutually agreed upon by the Interconnecting Utility and Applicant.

- (1) Reverse Power Protection: To limit export of power across the Point of Interconnection, a reverse power protective function may be provided. The default setting for this protective function is 0.1% (export) of the service transformer's rating, with a maximum 2.0 second time delay to limit Inadvertent Export.
- (2) Minimum Power Protection: To limit export of power across the Point of Interconnection, an under-power protective function may be provided. The default setting for this protective function is 5% (import) of the Project total Nameplate Rating, with a maximum 2.0 second time delay to limit Inadvertent Export.
- (3) Directional Power Protection: To limit export of power across the Point of Interconnection, a directional power protective function is implemented using a utility grade protective relay. The default setting for this protective function is the Export Capacity value with a maximum 2.0 second time delay to limit Inadvertent Export.



- (4) **Relative Distributed Energy Resource Rating:** This option requires the Nameplate Rating of the Project, minus any auxiliary load, to be so small in comparison to its host facility's minimum load that the use of additional protective functions is not required to ensure that power will not be exported to the electric delivery system. This option requires the Project capacity to be no greater than 50% of the Interconnection Requester's verifiable minimum host load over the past 12 months. This option is not available for interconnections to area networks or spot networks.
- (5) **Configured Power Rating:** A reduced output rating utilizing the power rating configuration setting may be used to ensure the Project does not generate power beyond a certain value lower than the Nameplate Rating.<sup>1</sup>
- (6) **Certified Power Control Systems:** Projects may use certified power control systems to limit export. Projects using this option must use a power control system and inverter certified per UL 1741 by a Nationally Recognized Testing Laboratory ("NRTL") with a maximum open loop response time of no more than 30 seconds. NRTL testing to the UL power control system certification requirements decision must be accepted until similar test procedures for power control systems are included in a standard. This option is not available for interconnections to area networks or spot networks.
- (7) **Limited Export Using Mutually Agreed-Upon Means:** Projects may be designed with other control systems and/or protective functions to limit export and Inadvertent Export to levels mutually agreed upon by the Interconnection Requester and the Interconnecting Utility. The limits may be based on technical limitations of the Interconnection Requester's equipment or the electric delivery system equipment. To ensure Inadvertent Export remains within mutually agreed-upon limits, the Interconnection Requester must use an internal transfer relay, energy management system, or other customer facility hardware or software. This can also include the utilization of a paired system such as solar and storage to limit the maximum AC output from the site at any given time through charging of the Energy Storage Device at key times.

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<sup>1</sup> The configuration setting corresponds to the active or apparent power ratings in Table 28 of IEEE 1547 – 2018, as described in subclause 10.4. A local Project communication interface is not required to utilize the configuration setting as long as it can be set by other means.

**NO. 61. AN ACT RELATING TO RENEWABLE ENERGY, EFFICIENCY,  
TRANSMISSION, AND VERMONT'S ENERGY FUTURE.**

(S.52)

It is hereby enacted by the General Assembly of the State of Vermont:

\* \* \*

(14) Consider the impact on retail electric rates of programs delivered under subsection (d) of this section.

**Sec. 7. STANDARDS FOR INTERCONNECTION OF DISTRIBUTED  
GENERATION**

On or before September 1, 2006, the public service board shall establish by rule or order standard provisions, including applicable fees that are required to cover the total cost of interconnection to be paid by the qualified distributed generator, for agreements providing for interconnection between the facilities of a retail electricity provider under the jurisdiction of the board and the facilities of a qualified distributed generator. The applicable safety, power quality, and interconnection requirement rules adopted by the board pursuant to section 219a of Title 30 shall be utilized in addition to any other requirements necessary to protect public safety and system reliability. The board may provide that such interconnection agreements may be conditioned in instances where interconnection would cause electric instability on the facilities of the local distribution grid. For the purposes of this section, "qualified distributed generator" means an electrical generator that has a capacity of less than 50 megawatts or a lower megawatt capacity established by the board in order to avoid federal preemption, and that is either:

- (1) a renewable generator as defined in section 8002 of Title 30; or
- (2) a generator that is part of a combined heat and power application providing an overall energy conversion efficiency of 65 percent or greater.

\* \* \* III. Transmission and Distribution \* \* \*

\* \* \* Regulatory policy \* \* \*

**Sec. 8. ADVOCACY FOR REGIONAL ELECTRICITY RELIABILITY  
POLICY**

VERMONT **GENERAL ASSEMBLY**

# The Vermont Statutes Online

The Vermont Statutes Online have been updated to include the actions of the 2023 session of the General Assembly.

NOTE: The Vermont Statutes Online is an unofficial copy of the Vermont Statutes Annotated that is provided as a convenience.

## **Title 30 : Public Service**

### **Chapter 089 : Renewable Energy Programs**

#### **Subchapter 001 : General Provisions**

(Cite as: **30 V.S.A. § 8011**)

#### **§ 8011. Energy storage facilities**

(a) The Commission may adopt and implement rules that govern the installation and operation of energy storage facilities of all sizes.

(b) The rules may establish a size threshold below which storage facilities need not submit an application for a certificate of public good pursuant to section 248 of this title.

(c) The rules may include provisions that govern:

(1) the respective duties of retail electricity providers and energy storage facility owners or operators;

(2) the electrical and fire safety, power quality, interconnection, metering, and decommissioning of energy storage facilities;

(3) the resolution of disputes between energy storage facility owners, operators, and the interconnecting provider;

(4) energy storage aggregators and the operation of aggregations; and

(5) energy storage facilities paired with other resources, such as net metering and standard offer plants, including retrofits of existing plants.

(d) The rules shall establish standards and procedures governing application for and issuance or revocation of a certificate of public good for certain energy storage facilities under the provisions of section 248 of this title. In establishing these standards and procedures, the rules may:

(1) waive the requirements of section 248 of this title that are not applicable to energy storage facilities, including criteria that are generally applicable to public service



companies as defined in this title;

(2) modify notice and hearing requirements of this title as the Commission considers appropriate; and

(3) seek to simplify the application and review process. (Added 2021, No. 54, § 11.)



# Proposed Rules Postings

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### Deadline For Public Comment

Deadline: Aug 21, 2023

The deadline for public comment has expired. Contact the agency or primary contact person listed below for assistance.

### Rule Details

Rule Number:	23P020
Title:	Rule 5.500: Interconnection Procedures for Proposed Electric Generation Resources and Energy Storage Devices.
Type:	Standard
Status:	Proposed
Agency:	Vermont Public Utility Commission
Legal Authority:	Public Act No. 61. § 7 (2006 Vt., Adj. Sess.); and 30 V.S.A. § 8011(c).
Summary:	This rulemaking involves amendments to the interconnection rule, including revising the amount of the application fee; adopting standards for the

interconnection of storage facilities; updating the procedures for filing an application with the interconnecting utility; establishing simplified procedures for small projects; revising the screening criteria for projects; updating the technical standards applicable to the review of all projects; and establishing requirements for limited export projects. The Commission has reorganized the structure of the proposed rule to improve readability and reduce repetition compared to the current rule.

**Persons Affected:**

The rule will affect entities seeking to interconnect distributed energy resources and the Vermont distribution and transmission electric utilities. The rule will affect all electric consumers by protecting the stability, reliability, and safety of the electric grid.

**Economic Impact:**

The rule will have a small economic impact on interconnection requesters. The rule will increase the standard application fee from \$300 to \$600 for projects with a nameplate rating of greater than 150 kW. Projects less than 150 kW will not pay an application fee unless the Commission approves a utility tariff containing cost-based fees. The application fee was last set in 2006 and the increase is necessary to cover the utilities' actual costs to review applications. The rule streamlines the interconnection application process for small distributed energy resources and may result in economic savings for such projects, though the experience of any individual project will depend on factors such as the condition of the grid where the project is seeking to interconnect and the number and type of other projects seeking to interconnect at that time and location.

**Posting date:**

Jun 28,2023

## Hearing Information

### Information for Hearing # 1

**Hearing date:**

08-15-2023 1:00 PM

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**Location:**

Virtual Hearing via GoToMeeting.

**Address:**

<https://meet.goto.com/151370229>

**City:**

Montpelier

**State:**

VT

**Zip:**

n/a

**Hearing Notes:**



## Contact Information

### Information for Primary Contact

**PRIMARY CONTACT PERSON - A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE.**

Level: Primary  
 Name: Jake Marren, Esq.  
 Agency: Vermont Public Utility Commission  
 Address: 112 State Street, 4th Floor  
 City: Montpelier  
 State: VT  
 Zip: 05620  
 Telephone: 802-828-2358  
 Fax: 802-828-3351  
 Email: [jake.marren@vermont.gov](mailto:jake.marren@vermont.gov)

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Website Address: <https://puc.vermont.gov/about-us/statutes-and-rules>

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### Information for Secondary Contact

**SECONDARY CONTACT PERSON - A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON.**

Level: Secondary  
 Name: Mary Jo Krolewski  
 Agency: Vermont Public Utility Commission  
 Address: 112 State Street, 4th Floor  
 City: Montpelier  
 State: VT  
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 Telephone: 802-828-2358  
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## Keyword Information

Keywords:

Energy

Energy Storage Devices  
Interconnection  
Distributed Energy Resources

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<b>TO:</b>	Seven Days Legals ( <a href="mailto:legals@sevendaysvt.com">legals@sevendaysvt.com</a> ) Kaitlin Montgomery( <a href="mailto:kaitlin@sevendaysvt.com">kaitlin@sevendaysvt.com</a> )	Tel: (802) 865-1020 x110. Attn: Kaitlin Montgomery
	The Caledonian Record Julie Poutré ( <a href="mailto:adv@caledonian-record.com">adv@caledonian-record.com</a> )	Tel: 748-8121 FAX: 748-1613
	Times Argus / Rutland Herald Melody Hudson ( <a href="mailto:classified.ads@rutlandherald.com">classified.ads@rutlandherald.com</a> ) Elizabeth Marrier ( <a href="mailto:elizabeth.marrier@rutlandherald.com">elizabeth.marrier@rutlandherald.com</a> )	Tel: 802-747-6121 ext 2238 FAX: 802-776-5600
	The Valley News ( <a href="mailto:advertising@vnews.com">advertising@vnews.com</a> )	Tel: 603-298-8711 FAX: 603-298-0212
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	News & Citizen ( <a href="mailto:mike@stowereporter.com">mike@stowereporter.com</a> ) Irene Nuzzo ( <a href="mailto:irene@newsandcitizen.com">irene@newsandcitizen.com</a> and <a href="mailto:ads@stowereporter.com">ads@stowereporter.com</a> removed from distribution list per Lisa Stearns.	Tel: 888-2212 FAX: 888-2173 Attn: Bryan
	St. Albans Messenger Legals ( <a href="mailto:legals@samessenger.com">legals@samessenger.com</a> )	Tel: 524-9771 ext. 117 FAX: 527-1948 Attn: Ben Letourneau
	The Islander ( <a href="mailto:islander@vermontislander.com">islander@vermontislander.com</a> )	Tel: 802-372-5600 FAX: 802-372-3025
	Vermont Lawyer ( <a href="mailto:hunter.press.vermont@gmail.com">hunter.press.vermont@gmail.com</a> )	Attn: Will Hunter

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**FROM:** APA Coordinator, VSARA

**Date of Fax:** November 9, 2023

**RE:** The "Proposed State Rules " ad copy to run on

**July 6, 2023**

PAGES INCLUDING THIS COVER MEMO:

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PROPOSED STATE RULES

By law, public notice of proposed rules must be given by publication in newspapers of record. The purpose of these notices is to give the public a chance to respond to the proposals. The public notices for administrative rules are now also available online at <https://secure.vermont.gov/SOS/rules/> . The law requires an agency to hold a public hearing on a proposed rule, if requested to do so in writing by 25 persons or an association having at least 25 members.

To make special arrangements for individuals with disabilities or special needs please call or write the contact person listed below as soon as possible.

To obtain further information concerning any scheduled hearing(s), obtain copies of proposed rule(s) or submit comments regarding proposed rule(s), please call or write the contact person listed below. You may also submit comments in writing to the Legislative Committee on Administrative Rules, State House, Montpelier, Vermont 05602 (802-828-2231).

Vermont Use of Public Waters Rules.

Vermont Proposed Rule: 23P017

AGENCY: Agency of Natural Resources

CONCISE SUMMARY: The proposed rule is an amendment to Section 3 and Appendix A of the Vermont Use of Public Waters Rules (UPW), Environmental Protection Rule Chapter 32. The rule proposes to regulate "wakesports" involving a "wakeboat" on certain lakes and ponds in Vermont. The rule would prohibit such wakesports on lakes, ponds, and reservoirs that do not have a minimum of 50 contiguous acres that are both 500 feet from shore on all sides and a minimum of 20 feet deep (eligibility rule). The rule would also limit such wakesports to these defined areas that are 500 feet from shore and 20 feet deep (operating rule). Finally, the rule would require a "wakeboat" to only be used in one lake per summer unless the wakeboat is decontaminated at a certified Dept. of Environmental Conservation (DEC) service provider (home lake rule). This rule is in response to a petition that was submitted to DEC in March 2022, requesting that DEC regulate wakeboats on certain Vermont lakes. A few editorial corrections are also being made.

FOR FURTHER INFORMATION, CONTACT: Oliver Pierson, Agency of Natural Resources, Davis Building, 3<sup>rd</sup> Floor, 1 National Life Drive, Montpelier, Vermont 05620-3522 Tel: 802-490-6198 Fax: 802-828-1544 Email: [oliver.pierson@vermont.gov](mailto:oliver.pierson@vermont.gov) URL: <https://dec.vermont.gov/watershed/lakes-ponds/rulemaking>.

FOR COPIES: Katelyn Ellermann, Agency of Natural Resources, Davis Building, 2nd Floor, 1 National Life Drive, Montpelier, Vermont 05620-3901 Tel: 802-522-7125 Fax: 802-828-1544 Email: [katelyn.ellerman@vermont.gov](mailto:katelyn.ellerman@vermont.gov).

Rule 5.400 5.400 Petitions to Construct Electric and Gas Facilities Pursuant to 30 V.S.A. § 248.

Vermont Proposed Rule: 23P018

AGENCY: Public Utility Commission

CONCISE SUMMARY: Section 248 of Title 30 of the Vermont Statutes annotated requires persons seeking to build certain electric generation, electric or gas transmission, or energy storage facilities to obtain a certificate of public good from the Commission. Commission Rule 5.400 implements the requirements of Section 248.

The proposed amendments serve four primary purposes. First, they provide increased clarity on the information that must be filed for a Section 248 petition to be considered complete. Second, they update the means by which parties can exchange and collect information in response to technological advances and our experience with the COVID-19 pandemic. Third, they provide clarity on the processes that must be followed when petitioners seek to amend projects that are under review, or have been reviewed and approved. Fourth, the amendments simplify the process for certain persons and entities to intervene as parties in Section 248 cases.

FOR FURTHER INFORMATION, CONTACT: John J. Cotter, Esq., Vermont Public Utility Commission, 112 State Street, 4th Floor, Montpelier, VT 05602 Tel: 802-461-6364 Fax: 802-828-3352 Email: [john.cotter@vermont.gov](mailto:john.cotter@vermont.gov) URL: <https://epuc.vermont.gov/?q=node/64/156798>.

FOR COPIES: Elizabeth Schilling, Esq., Vermont Public Utility Commission, 112 State Street, 4th Floor, Montpelier, VT 05602 Tel: 802-828-1164 Fax: 802-828-3352 Email: [elizabeth.schilling@vermont.gov](mailto:elizabeth.schilling@vermont.gov).

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#### 5.100 Rule Pertaining to Construction and Operation of Net-Metering Systems (the "Net-Metering Rule").

Vermont Proposed Rule: 23P019

AGENCY: Public Utility Commission

CONCISE SUMMARY: This rulemaking involves amendments to the Net-Metering Rule, including changes to the definition of the term "preferred site"; limits on the amount of forest clearing associated with projects on "preferred sites"; updates to the registration and application processes for net-metering systems; changes to project amendment processes and requirements; clarifications regarding the rates applicable to expanded net-metering systems; updates to the transfer and extension requirements for net-metering system certificates of public good; the addition of language authorizing utilities to propose tariffs assessing locational adjutor fees for constrained areas of the grid; changes to update the Rule consistent with state statute and other Commission rules, including the Commission's Rules of Practice and Interconnection Rule; changes acknowledging the use of ePUC - the Commission's electronic filing system; and other changes to otherwise improve, clarify, and streamline the Rule.

FOR FURTHER INFORMATION, CONTACT: Jake Marren, Vermont Public Utility Commission, 112 State St. 4<sup>th</sup> Floor, Montpelier, VT 05602 Tel: 802-828-2358 Fax: 802-828-3351 Email: [jake.marren@vermont.gov](mailto:jake.marren@vermont.gov) URL: <https://puc.vermont.gov/about-us/statutes-and-rules>.

FOR COPIES: Elizabeth Schilling, Vermont Public Utility Commission, 112 State St. 4th Floor, Montpelier, VT 05602 Tel: 802-828-2358 Email: [elizabeth.schilling@vermont.gov](mailto:elizabeth.schilling@vermont.gov).

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#### Rule 5.500: Interconnection Procedures for Proposed Electric Generation Resources and Energy Storage Devices.

Vermont Proposed Rule: 23P020

AGENCY: Public Utility Commission

CONCISE SUMMARY: This rulemaking involves amendments to the interconnection rule, including revising the amount of the application fee; adopting standards for the interconnection of storage facilities; updating the procedures for filing an application with the interconnecting utility; establishing simplified procedures for small projects; revising the screening criteria for projects; updating the technical standards applicable to the review of all projects; and establishing requirements for limited export projects. The Commission has reorganized the structure of the proposed rule to improve readability and reduce repetition compared to the current rule.

FOR FURTHER INFORMATION, CONTACT: Jake Marren, Vermont Public Utility Commission, 112 State St. 4<sup>th</sup> Floor, Montpelier, VT 05602 Tel: 802-828-2358 Fax: 802-828-3351 Email: [jake.marren@vermont.gov](mailto:jake.marren@vermont.gov) URL: <https://puc.vermont.gov/about-us/statutes-and-rules>.

FOR COPIES: Mary Jo Krolewski, Vermont Public Utility Commission, 112 State St. 4th Floor, Montpelier, VT 05602 Tel: 802-828-2358 Fax: 802-828-3351 Email: [Mary-Jo.Krolewski@vermont.gov](mailto:Mary-Jo.Krolewski@vermont.gov).

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Medicaid Coverage of Exception Requests.

Vermont Proposed Rule: 23P021

AGENCY: Agency of Human Services

CONCISE SUMMARY: This rule sets forth the criteria for Medicaid coverage pursuant to the Exceptions Request process. It amends current Medicaid Services Rule 7104 titled "Requesting Coverage Exceptions." Revisions include: (1) stating that the process only applies to beneficiaries age 21 years old or older, (2) stating that certain criteria are mandatory, (3) clarifying eligibility criteria, (4) changing the frequency that certain approved exception requests are published on the website of the Department of Vermont Health Access, and (5) removing references to the Interpretive Memo process and incorporating related processes into the rule.

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