

July 22, 2022

The Hon. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: Amendments to the HVDC Transmission Operating Agreement and
Schedule 20A to the ISO New England Inc. Open Access Transmission Tariff
in Compliance with Order No. 881
Docket No. ER22-____-000 and Docket No. ER22-____-000**

Dear Secretary Bose:

Pursuant to Rule 1907 of the Federal Energy Regulatory Commission's ("FERC or the "Commission")¹ Rules of Practice and Procedure, 18 C.F.R. § 385.1907 (2007), and Section 206 of the Federal Power Act ("FPA"), ISO New England Inc. ("ISO-NE" or "ISO"); New England Hydro-Transmission Electric Company, Inc.; New England Hydro-Transmission Corporation; New England Electric Transmission Corporation; and Vermont Electric Transmission Company (collectively the "Asset Owners"); and the public utilities that provide transmission service under Schedule 20A to the ISO OATT (the "Schedule 20A Service Providers")² (collectively, the "Filing Parties") hereby jointly submit this transmittal letter and proposed revisions to the HVDC Transmission Operating Agreement (the "HVDC TOA") among ISO-NE and the Asset Owners and to Schedule 20A-Common to the ISO OATT to comply with the Commission's Order No. 881 on managing transmission line ratings with respect to the high-voltage, direct current ("HVDC") transmission facilities interconnecting New England and Québec known as the Phase

¹ Capitalized terms used but not defined in this filing are intended to have the meanings given to such terms in the ISO New England Inc. Transmission, Markets and Services Tariff ("ISO Tariff"), including the ISO-NE's Open Access Transmission Tariff ("ISO OATT"), which is Section II of the ISO Tariff, and Market Rule 1, which is Section III of the ISO Tariff. The ISO Tariff is available at www.iso-ne.com/regulatory/tariff/index.html.

² The "Schedule 20A Service Providers" consist of the following entities: Central Maine Power Company; Eversource Energy Service Company as agent for The Connecticut Light and Power Company and Public Service Company of New Hampshire; Green Mountain Power Corporation; New England Power Company; NSTAR Electric Company; The United Illuminating Company; Vermont Electric Cooperative, Inc.; and Versant Power.

I/II HVDC-TF.³ This filing is referred to hereafter as the “Phase I/II HVDC-TF Order No. 881 Compliance Filing.”

On July 14, 2022, the Commission granted the Filing Parties’ request for a ten day extension to submit a filing to comply with Order No. 881 for the Phase I/II HVDC-TF.

This filing letter contains the following elements:

- an overview of the Phase I/II HVDC-TF Order No. 881 Compliance Filing (Section I);
- description of the Filing Parties, and communications information (Section II);
- background on the compliance requirement of Order No. 881, and a description of the roles of the Filing Parties with respect to the Phase I/II HVDC-TF (Section III);
- discussion of the HVDC TOA and Schedule 20A-Common changes proposed in compliance with Order No. 881 (Section IV);
- the requested effective date (Section V);
- additional supporting information (Section VI); and
- a conclusion (Section VII).

I. OVERVIEW OF FILING

The Filing Parties submit the instant filing in compliance with the Commission’s Order No. 881.⁴ This filing takes into account certain unique features of the U.S. portion of the Phase I and II high-voltage direct current transmission facilities (“Phase I/II HVDC-TF”) connecting New England to Québec. The Phase I/II HVDC-TF were developed as participant-funded transmission projects in the 1980s and were constructed in two phases. The Asset Owners are owners of the Phase I/II HVDC-TF. The Asset Owners and ISO-NE are parties to the HVDC

³ The rights under Section 205 of the Federal Power Act to modify the HVDC TOA are held by ISO-NE and the Asset Owners. The rights under Section 205 of the Federal Power Act to modify Schedule 20A-Common are held by the Schedule 20A Service Providers acting through the Schedule 20A Service Provider Administrative Committee. As it relates to the changes to the HVDC TOA, ISO-NE joins this filing as holder of the Section 205 filing rights, and, as it relates to the changes to Schedule 20A, ISO-NE joins only in its capacity as administrator of the eTariff system.

⁴ On July 12, 2022, ISO-NE, the Participating Transmission Owners, and Cross-Sound Cable, with the support of the New England Power Pool (“NEPOOL”), submitted a filing in Docket No. ER22-2357 addressing Order No. 881 compliance for most of the transmission facilities in New England.

TOA, which, among other things, governs the responsibility of the Asset Owners to establish transmission line ratings and rating procedures subject to collaboration with ISO-NE. The Asset Owners have granted all rights to use those facilities to the Interconnection Rights Holders (“IRH”), the entities that pay for the Phase I/II HVDC-TF. Certain of the IRH re-sell available use rights on the Phase I/II HVDC-TF on an open access basis in accordance with Schedule 20A to the ISO OATT. The Filing Parties developed the Phase I/II HVDC-TF Order No. 881 Compliance Filing through discussions that took into account the unique characteristics of the Phase I/II HVDC-TF.

The Phase I/II HVDC-TF Order No. 881 Compliance Filing consists of changes to both the HVDC TOA and to Schedule 20A-Common in Section II of the ISO Tariff. More specifically, these documents have been amended in the following respects in order to implement the changes mandated in Order No. 881.

- The HVDC TOA has been modified to address the Order No. 881 requirements related to transmission ratings and rating procedures.
- Schedule 20A-Common has been modified to ensure compliance with Order No. 881 with respect to transmission rating transparency and transmission service.

II. DESCRIPTION OF FILING PARTIES; COMMUNICATIONS BACKGROUND

ISO-NE is the private, non-profit entity that serves as the Regional Transmission Organization (“RTO”) for New England. ISO-NE plans and operates the New England bulk power system and administers New England’s organized wholesale electricity markets pursuant to the ISO Tariff and transmission operating agreements with transmission owners in the region. In its capacity as an RTO, ISO-NE has the responsibility to protect the short-term reliability of the New England Control Area and to operate the system according to reliability standards established by Northeast Power Coordinating Council, Inc. and North American Electric Reliability Corporation (“NERC”).

The Asset Owners consist of the following four entities: New England Hydro-Transmission Electric Company, Inc. owns and operates the Phase II transmission facilities in Massachusetts; New England Hydro-Transmission Corporation owns and operates the Phase II HVDC transmission facilities in New Hampshire; New England Electric Transmission Corporation owns and operates the Phase I HVDC transmission facilities in New Hampshire; and Vermont Electric Transmission Company owns and operates the Phase I HVDC transmission facilities in Vermont. Each of the Asset Owners are parties to Commission-approved Support Agreements under which the IRH agree to financially support the elements of the Phase I/II HVDC-TF owned by each Asset Owner in exchange for rights to use all of the transmission capacity of the Phase I/II HVDC-TF to transmit power to and from the Hydro-Québec system.⁵

The Schedule 20A Service Providers are public utility IRH who re-sell transmission service on Phase I/II HVDC-TF (*i.e.*, Use Rights that are not being used by the IRH) on an open access basis under Schedule 20A to the ISO OATT. Pursuant to a Phase I/II HVDC-TF Transmission Service Administration Agreement (“TSAA”) among ISO-NE, the Schedule 20A Service Providers, and the IRH Management Committee on behalf of the IRHs, the Schedule 20A Service Providers have the sole authority under Section 205 of the Federal Power Act to file changes to Schedule 20A-Common to the ISO OATT. The Schedule 20A Service Providers are defined as Transmission Providers under the ISO Tariff.

Correspondence and communications in this proceeding should be addressed to:

⁵ See 175 FERC ¶ 61,140 (2021)(accepting an uncontested settlement amending the Support Agreements and the related Use Agreement among the IRH).

The Honorable Kimberly D. Bose
July 22, 2022
Page 5 of 19

ISO New England, Inc.

Graham Jesmer, Esq.*
Regulatory Counsel
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040
Tel: (413) 535-4045
E-mail: gjesmer@iso-ne.com

**New England Hydro-Transmission Electric
Company, Inc.; New England Hydro-
Transmission Corporation; and New
England Electric Transmission
Corporation.**

Patrick J. Tarmey*
National Grid
40 Sylvan Road
Waltham, MA 02451
Tel: (781) 907-2190
E-mail: patrick.tarmey@nationalgrid.com

Sean A. Atkins
Davis Wright Tremaine LLP
1301 K Street NW
Suite 500 East
Washington, D.C. 20006
Tel: (202) 973-4200
E-mail: seanatkins@dwt.com

Vermont Electric Transmission Company

S. Mark Sciarrotta*
General Counsel and Senior Director, Vermont
Electric Power Company
366 Pinnacle Ridge Road
Rutland, VT 05701
Tel: (802) 770-6339
E-Mail: MSCIARROTTA@velco.com

Schedule 20A Service Providers

Mary E. Grover, Esq.*
Eversource Energy
247 Station Drive, SE100
Westwood, MA 02090
Tel: (781) 441-8696
E-mail: mary.grover@eversource.com

*Persons designated for service.⁶

III. BACKGROUND

A. Order No. 881

On December 16, 2021, the Commission issued Order No. 881, a final rule revising the *pro forma* Open Access Transmission Tariff (“OATT”) and the Commission’s regulations to improve the accuracy and transparency of transmission line ratings (“Order No. 881” or the “Final Rule”).⁷ On May 19, 2022, the Commission issued Order No. 881-A, acting on requests for rehearing and clarification of Order No. 881, modifying the discussion in Order No. 881, granting clarification in part, and continuing to reach the same result as the Final Rule.⁸

Order No. 881 builds upon a Notice of Proposed Rulemaking (“NOPR”) issued on November 19, 2020. The Final Rule requires that: 1) public utility transmission providers⁹ must implement ambient-adjusted ratings (“AARs”) on the transmission lines over which they provide transmission service; 2) regional transmission organizations (“RTOs”) and independent system operators (“ISOs”) must establish and implement the systems and procedures necessary to allow transmission owners to electronically update transmission line ratings at least hourly; 3) public

⁶ The Filing Parties respectfully request a waiver of Section 385.203(b)(3) of the Commission’s regulations to allow the inclusion of more than two persons on the service list in this proceeding.

⁷ *Managing Transmission Line Ratings*, Order No. 881, 177 FERC ¶ 61,179 (2021) (“Order No. 881”). The Final Rule is available here: <https://www.ferc.gov/media/e-1-rm20-16-000>.

⁸ *Managing Transmission Line Ratings*, Order No. 881-A, 179 FERC ¶ 61,125 (2022) (“Order No. 881-A”).

⁹ See Order No. 881 at fn. 2. The Commission notes, “in this final rule we use transmission provider to mean any public utility that owns, operates, or controls facilities used for the transmission of electric energy in interstate commerce. 18 CFR 37.3 (2021). Therefore, unless otherwise noted, “transmission provider” refers only to public utility transmission providers. Furthermore, the term “public utility” as found in Section 201(e) of the FPA means “any person who owns or operates facilities subject to the jurisdiction of the Commission under this subchapter...” 16 U.S.C. 824(e).”

utility transmission providers must use uniquely determined emergency ratings; 4) public utility transmission owners must share transmission line ratings and transmission line rating methodologies with their respective transmission provider(s) and with market monitors in RTOs and ISOs; and 5) public utility transmission providers must maintain a database of transmission owners' transmission line ratings and transmission line rating methodologies on the transmission provider's Open Access Same-Time Information System ("OASIS") site or other password-protected website.

In addition to adopting the definitions of transmission line ratings, AARs and Dynamic Line Ratings ("DLRs") discussed above, the Commission adopts requirements for the greater use of AARs,¹⁰ for emergency ratings,¹¹ and to improve transparency.¹²

As it relates to increasing the use of AARs, first the Commission requires that transmission providers use AARs as the basis for evaluation of transmission service requests that will end within 10 days of the request. The Commission also requires transmission providers to use AARs as the basis for their determination of the necessity of certain curtailment, interruption or redispatch of transmission service anticipated to occur within those 10 days. For transmission service in the longer term, the Commission requires that transmission providers use Seasonal Line Ratings as the basis for evaluation of transmission service requests ending more than 10 days from the date of the request and that transmission providers use Seasonal Line Ratings as the basis for the determination of the necessity of curtailment, interruption or redispatch of transmission service that is anticipated to occur more than 10 days in the future. For both longer and shorter term transmission service, the Commission adopts exceptions to the AAR and Seasonal Line Rating requirements to accommodate instances in which the transmission line rating is not affected by ambient air temperature and instances in which a transmission provider

¹⁰ Order No. 881 at P 47. In its comments, ISO-NE stated that most of the congestion on the ISO-NE system is due to voltage or stability limitations, and that the benefits of AARs may therefore be limited. ISO-NE estimated in its comments that implementing AARs could result in the lowering of thermal congestion costs by approximately \$5-10 million per year. Docket No. RM20-16, Comments of ISO New England, Inc., p 5 (March 22, 2021).

¹¹ Order No. 881 at P 269.

¹² Order No. 881 at P 330.

reasonably determines, consistent with good utility practice, that the use of a temporary alternate rating is necessary to ensure the reliability and safety of the transmission system.¹³

In addition to the requirements to improve accuracy by using AARs and Seasonal Line Ratings, the Commission also adopted requirements for transmission providers to use uniquely determined emergency ratings. The emergency ratings reflect the fact that most transmission equipment can withstand higher than normal currents for a short time without sustaining damage and define the specific additional capacity that the line can withstand for the given timeframe without sustaining damage. The Commission states that the uniquely determined emergency ratings “must also incorporate an adjustment for ambient air temperature and daytime/nighttime solar heating” consistent with the AAR requirements for normal ratings.¹⁴

Finally, the Commission adopted four requirements to enhance transparency. First, the Commission requires public utility transmission owners to share transmission line ratings and methodologies with their transmission provider and with market monitors in RTOs and ISOs. Second, the Commission requires transmission providers to share their transmission owners’ transmission line ratings and methodologies with any transmission provider(s) upon request. Third, the Commission requires transmission providers to maintain a database of their transmission owners’ transmission line ratings and methodologies on OASIS. Fourth, the Commission requires transmission providers to post on OASIS any uses of exceptions or temporary alternate ratings.¹⁵

Order No. 881 was published in the *Federal Register* on January 13, 2022 and became effective March 14, 2022. The required compliance filings are due on July 12, 2022. The Commission requires that all requirements adopted in Order No. 881 be fully implemented no later than three years from the compliance filing date.¹⁶

¹³ Order No. 881 at P 193 (seasonal line ratings) and P 217 (exceptions and alternate ratings). For seasonal line ratings the Commission adopts the proposal in the NOPR to require transmission providers to use seasonal line ratings when (1) evaluating requests for transmission service ending *more than* 10 days from the date of the request; (2) responding to requests for information on the availability of such transmission service; and (3) posting transmission availability or other information related to transmission service on OASIS. Order No. 881 at P 198. For the exceptions, the Commission allows exceptions to the AAR and seasonal line rating requirements “in instances where the transmission provider determines, consistent with good utility practice, that the transmission line rating of a transmission line is not affected by ambient air temperatures.” Order No. 881 at 227.

¹⁴ Order No. 881 at P 10.

¹⁵ Order No. 881 at P 330.

¹⁶ Order No. 881 at P 12.

B. Current Operating and Transmission Service Arrangements for the Phase I/II HVDC-TF

The Phase I/II HVDC-TF were built in two phases. Phase I was initiated in 1983 and commenced commercial operations in 1986. Phase II was initiated in 1986 and commenced commercial operations in 1990. Since 1990, Phase I and II have been operated as integrated facilities. The Phase I/II HVDC-TF allow for the delivery of power from Québec to New England, including low cost, clean hydropower. The Canadian portion of the interconnection facilities is owned by Hydro-Québec TransÉnergie (“HQTÉ”), the transmission division of Hydro-Québec.

The Phase I facilities include a 107-mile HVDC transmission line insulated for a nominal operating voltage of +/- 450 kV from a site near Sherbrooke, Québec to a site near Monroe, New Hampshire. The transmission line crosses the international boundary near Stanhope, Québec and Norton, Vermont. The nominal transfer capability of the Phase I HVDC Transmission Facilities was 690 MW.

The Phase II facilities were constructed at the same time HQTÉ extended the Canadian portion of the Phase I transmission line from Sherbrooke, Québec, approximately 700 miles north to a site near the LaGrande River at James Bay, Québec. New England Hydro-Transmission Electric Company, Inc. and New England Hydro-Transmission Corporation extended the United States portion of the DC intertie from Monroe, New Hampshire approximately 133 miles south to an AC/DC converter terminal site (“Sandy Pond”) near Ayer, Massachusetts. The addition of the Phase II facilities increased the nominal transfer capacity between HQTÉ and New England from 690 MW to 2,000 MW. Once converted to AC, the energy from Phase II flows onto the regional New England transmission network, known as the ISO-NE Pool Transmission Facilities or PTF.

As the largest single contingency loss of source in New England, the Phase I/II HVDC-TF are typically limited in operation below the 2,000 MW nominal rating, sometimes to as low as 1,200 MW. Although the Phase II facilities are rated at maximum capability of 2,000 MW, the Presidential Permit (Department of Energy PP-76, as amended September 16, 1988) allowing the facilities to deliver electric power across the U.S. border with Canada was issued on the condition that its operation would not jeopardize regional reliability. Accordingly, the maximum flow in any given hour may be limited by system conditions in the PJM Interconnection LLC (“PJM”) and New York Independent System Operator, Inc. (“NYISO”) balancing authority areas in order to protect their systems from a contingency loss of the Phase II facilities. This operational constraint is reflected in a Procedure to Protect for the Loss of Phase II Imports among ISO-NE, PJM and NYISO.¹⁷

¹⁷ See ISO Tariff, Attachment G, Procedure to Protect for the Loss of Phase II Imports, https://www.iso-ne.com/static-assets/documents/regulatory/tariff/attach_g/attachment_g.pdf

Since the establishment of ISO-NE as the RTO for the New England region in 2005, the Asset Owners and ISO-NE have had a transmission operating agreement, referred to as the “HVDC TOA,” that clarifies and formalizes the operating arrangements between the Asset Owners and ISO-NE for the Phase I/II HVDC-TF.¹⁸ Under the HVDC TOA, the Phase I/II HVDC-TF are fully subject to the operational authority of ISO-NE in its role as New England RTO.

Since 2005, the Schedule 20A Service Providers have been able to utilize Schedule 20A to the ISO OATT to make available Use Rights over the Phase I/II HVDC-TF for firm and non-firm service by customers on an open access basis.¹⁹ Prior to the effective date of Schedule 20A, to comply with open access requirements established by the Commission in the 1990s, IRH that were Commission-jurisdictional transmission providers offered any of their available Use Rights to transmission customers through their individual local OATTs.²⁰ Under Schedule 20A, there is a common set of terms and conditions for transmission service and reassignments of transmission service over the Phase I/II HVDC-TF as well as individual rate schedules for each Schedule 20A Service Provider. An IRH that is not a Commission-jurisdictional transmission provider can make its Use Rights available through a Schedule 20A Service Provider under appropriate contractual arrangements with the Schedule 20A Service Provider.

There has always been an advance reservation and physical rights system of transmission service in place over these facilities. That system has worked in conjunction with New England’s standard market design since the inception of locational marginal pricing of energy in 2003. Once an advance reservation for the Phase I/II HVDC-TF capacity has been obtained, either through Schedule 20A or a Transfer Agreement, transmission customers are free to submit their proposed energy transactions into the ISO-NE market system, and ISO-NE then dispatches the transactions on the same basis as all other energy transactions in New England (*i.e.*, on a locational economic merit order basis). Thus, from both an ISO Tariff transmission and markets basis the Phase I/II HVDC-TF are fully integrated into the New England transmission service and market design.

¹⁸ See *ISO New England, Inc., et al.*, 111 FERC ¶ 61,244 (2005). The HVDC TOA is available at: https://www.iso-ne.com/static-assets/documents/regulatory/toa/toa_1_27_2012.pdf.

¹⁹ See *ISO New England*, 111 FERC ¶ 61,244 at PP 8-10. Each IRH also has the right to enter into a Transfer Agreement with another entity for the transfer of its Use Rights. See *NSTAR Electric Co.*, 125 FERC ¶ 61,371 (2008).

²⁰ See pages 8-10 of the March 31, 2005, filing submitted by ISO-NE, the Asset Owners, the IRH Management Committee, and certain individual IRH in Docket No. ER05-754.

IV. THE FILING PARTIES' COMPLIANCE WITH ORDER NO. 881 FOR THE PHASE I/II HVDC-TF

In evaluating Order No. 881, the Filing Parties determined that compliance with respect to the Phase I/II HVDC-TF created some issues unique to these facilities. The Asset Owners are the transmission owners for the Phase I/II HVDC-TF and have the responsibility to establish transmission line ratings and transmission line rating methodologies for these facilities, but they have sold all rights for transmission service over the Phase I/II HVDC-TF to the IRH under the Support Agreements for a period that runs through October 2040. Because all capacity on the Phase I/II HVDC-TF is sold on a long-term basis to the IRH under Commission-approved participant-funded arrangements, the Asset Owners do not maintain OASIS pages.²¹ The Asset Owners also have no filing rights with respect to any portion of the ISO Tariff. The Schedule 20A Service Providers are transmission service providers that offer to re-sell transmission service on the Phase I/II HVDC-TF, but have no role in establishing or modifying transmission line ratings or transmission line rating procedures for the Phase I/II HVDC-TF. ISO-NE is neither a transmission owner nor a transmission provider for the Phase I/II HVDC-TF but has operating authority for the facilities, including certain contractual rights for changing transmission line ratings and transmission line rating procedures for the Phase I/II HVDC-TF.

The Filing Parties determined that the most appropriate approach to comply with Order No. 881 is to bifurcate the requirements of the *pro forma* Attachment M between two new attachments – one in the HVDC TOA and the other in Schedule 20A-Common – with targeted adjustments to reflect the nature of the Phase I/II HVDC-TF and Schedule 20A service over these facilities. The Filing Parties respectfully submit that the proposals in this Phase I/II HVDC-TF Order No. 881 Compliance Filing are consistent with or superior to the *pro forma* Attachment M as it applies to the Phase I/II HVDC-TF. These modifications also are consistent with Order No. 881, which allowed for regional flexibility in order to achieve its goals.²²

In submitting the proposed new Attachment M to the HVDC TOA and the new Attachment M for Schedule 20A-Common, the Filing Parties reserve the right to submit for Commission acceptance future amendments to other provisions of the HVDC TOA or Schedule 20A that the Filing Parties may identify as appropriate to be consistent with or superior to the requirements of Order No. 881.

²¹ See *Black Creek Hydro, Inc., et al.*, 76 FERC ¶ 61,250 (1996), *order on reh'g*, 77 FERC ¶ 61,232 (1996).

²² See Order No. 881 at P 89 (noting that RTOs/ISOs “have Commission-approved variations from the *pro forma* OATT to manage congestion and initiate curtailments and/or redispatch of transmission service within their footprints (although generally not at their borders) through mechanisms such as SCED and SCUC,” and that Transmission Line Rating changes must be incorporated in these constructs.)

A. The HVDC TOA

Section 3.04(a)(v) of the HVDC TOA provides for the Asset Owners to:

(v) collaborate with the ISO with respect to:

(A) the development of Rating Procedures for Phase I/II HVDC Transmission Facilities,

(B) the establishment of ratings for upgrades to the Phase I/II HVDC Transmission Facilities; and

(C) the establishment of any changes to existing ratings for the Phase I/II HVDC Transmission Facilities in effect as of the Effective Date.

Section 3.04(a)(v) further provides for a dispute resolution process if there is any disagreement between ISO-NE and any Asset Owner with respect to the ratings of that Asset Owner or the development and revision of rating procedures.

To comply with Order No. 881, the Asset Owners and ISO-NE propose to amend the HVDC TOA to include a new Attachment M that incorporates language based on the *pro forma* Attachment M adopted by the Commission in Order No. 881 with targeted modifications to account for the characteristic of the Phase I/II HVDC-TF discussed above.²³ Because they have sold all Use Rights on the Phase I/II HVDC-TF to the IRH under Support Agreements on a participant-funded basis, the Asset Owners do not have a tariff on file with the Commission for the Phase I/II HVDC-TF. Due to its provisions addressing transmission ratings, the Asset Owners and ISO-NE have determined that the HVDC TOA is the appropriate document subject to the Commission's jurisdiction to include the new Attachment M complying with Order No. 881 with respect to Phase I/II HVDC-TF ratings and rating procedures.²⁴

To transparently illustrate the differences between the new Attachment M proposed to be added to the HVDC TOA and the *pro forma* Attachment M adopted by the Commission in Order No. 881, the Asset Owners and ISO-NE have provided a redlined version of proposed Attachment M to the HVDC TOA showing changes as against the *pro forma* Attachment M as part of the documents supporting this filing. These changes reflect modifications to the *pro forma* Attachment M intended to tailor the revised language to reflect the unique features of the Phase I/II HVDC-TF. Attachment M to the HVDC TOA generally focuses on the establishment

²³ Upon Commission acceptance of this filing, the Asset Owners and ISO-NE intend to sign an amendment to the HVDC TOA memorializing their agreement to the revisions proposed in this filing.

²⁴ The HVDC TOA does not currently have any other attachments. For consistency with the *pro forma* Attachment M, however, the Asset Owners and ISO-NE have proposed to label the new attachment to the HVDC TOA proposed in this filing as Attachment M.

of transmission ratings and rating procedures, while issues related to transmission service and OASIS postings in compliance with Order No. 881 are included in Schedule 20A-Common as modified by this filing.

Consistent with the revisions proposed by ISO-NE in Attachment Q to the ISO OATT pending in Docket No. ER22-2357, Attachment M to the HVDC TOA specifies that it will go into effect beginning July 2025. Various defined terms in Attachment M to the HVDC TOA are made specific to the “HVDC-TF.” Definitions related to transmission service are defined by cross-reference to Schedule 20A-Common, where those terms are fully defined. In addition, where appropriate, the term “Transmission Provider” has been replaced with “Asset Owner.”

Additionally, references have been added to the HVDC TOA and any applicable ISO-NE Operating Documents.²⁵ For example, if an Asset Owner determines, consistent with Good Utility Practice, that the temporary use of an alternate rating for that Asset Owner’s facility is necessary to ensure the safety and reliability of the New England Transmission System, then the applicable Asset Owner and ISO-NE will confirm the use of such an alternate rating “consistent with any applicable procedures established in ISO New England Operating Documents and consistent with the other provisions of [the] HVDC TOA.”

Obligations from the *pro forma* Attachment M related to transmission service requests are included in Attachment M to Schedule 20A-Common and not Attachment M to the HVDC TOA. Again, this is consistent with the fact that the Asset Owners have already sold all service on the Phase I/II HVDC-TF to the IRH on a long-term basis.

New language has been added to Attachment M to the HVDC TOA providing that the Asset Owners will, consistent with the attachment, other provisions of the HVDC TOA, and any applicable ISO New England Operating Documents, calculate and electronically transmit AARs, Emergency HVDC-TF Ratings and Seasonal HVDC-TF Line Ratings to ISO-NE and the Schedule 20A Service Providers.²⁶ This will allow ISO-NE to incorporate this information in the models used in its Day-Ahead and Real-Time Energy Markets and unit commitment processes.

Under the terms of Attachment M to the HVDC TOA, and consistent with Order No. 881, any Seasonal Line Ratings will reflect historical ambient temperatures across the relevant season. The language in this provision has been modified slightly to correspond with the ISO’s proposed Attachment Q applicable to regional service.

²⁵ The ISO-NE Operating Documents are the ISO Tariff and the ISO New England Operating Procedures, including the ISO New England Planning Procedures.

²⁶ Corresponding provisions addressing the obligations of the Schedule 20A Service Providers to utilize this information are being added to Attachment M to Schedule 20A-Common, as described below.

Attachment M to the HVDC TOA addresses the requirements of Order No. 881 related to a database of transmission line ratings by requiring the Asset Owners to send to the Schedule 20A Service Providers databases of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies. The Schedule 20A Service Providers will then maintain these databases on the password-protected section of the Schedule 20A Service Providers' OASIS pages or on another password-protected website.

Lastly, the exceptions provisions of Attachment M to the HVDC TOA have been modified so that each Asset Owner can determine if its HVDC-TF will be excepted from the application of AARs or seasonal line ratings in certain circumstances. Such exceptions will be posted on the OASIS page or on password-protected website. Due to operational constraints mandated by the Presidential Permit and implemented in a Procedure to Protect for the Loss of Phase II Imports, the Phase I/II HVDC-TF have a transfer capability limited by a transmission system limit which is not dependent on ambient air temperature or solar heating.²⁷ As such the Asset Owners expect to determine, consistent with Good Utility Practice, that exceptions apply to the Phase I/II HVDC-TF in accordance with Order No. 881 and Attachment M.

The HVDC TOA changes were posted to the ISO-NE website on July 21, 2022 consistent with Section 11.04(f) of the HVDC TOA.²⁸

B. Schedule 20A-Common

To comply with Order No. 881, the Schedule 20A Service Providers propose to amend Schedule 20A-Common to include a new Attachment M that incorporates language based on the *pro forma* Attachment M adopted by the Commission in Order No. 881 with targeted modifications.²⁹ Only limited provisions of the *pro forma* Attachment M related to the provision of transmission service and OASIS postings apply to the Schedule 20A Service Providers. As discussed, above, the separate Attachment M to the HVDC TOA generally focuses on the establishment of transmission ratings and rating procedures.

²⁷ See supra note 17. The Commission found that, “The activities to be performed by [ISO-NE, NYISO, and PJM] under the Procedure, such as the calculation of scheduling limitations, could affect significantly the jurisdictional service provided under [their] tariffs and whether there is available capacity to provide transmission service on [their] systems” and directed that ISO-NE, NYISO, and PJM add the Procedure to Protect for the Loss of Phase II Imports to their respective tariffs. *PJM Interconnection, LLC*, 118 FERC ¶ 61,017, at P 25, *order accepting compliance filing*, 119 FERC ¶ 61,179 (2007).

²⁸ The HVDC TOA changes were posted with the materials for the July 27, 2022, NEPOOL Transmission Committee Meeting at: <https://www.iso-ne.com/event-details?eventId=147065>.

²⁹ Schedule 20A-Common currently includes Attachments A, A-1, and C. For consistency with the *pro forma* Attachment M, however, the Schedule 20A Service Providers have proposed to label the new attachment to Schedule 20A-Common proposed in this filing as Attachment M.

To transparently illustrate the differences between the new Attachment M proposed to be added to Schedule 20A-Common and the *pro forma* Attachment M adopted by the Commission in Order No. 881, the Schedule 20A Service Providers have provided a redlined version of proposed Attachment M to Schedule 20A-Common showing changes as against the *pro forma* Attachment M as part of the documents supporting this filing. These changes reflect modifications to the *pro forma* Attachment M intended to tailor the revised language to reflect the unique features of the Phase I/II HVDC-TF.

Consistent with the revisions proposed by ISO-NE in Attachment Q to the ISO OATT pending in Docket No. ER22-2357, Attachment M to Schedule 20A-Common specifies that it will go into effect beginning July 2025. The definition of “Near-Term Phase I/II HVDC-TF Service” is modified to make it clear that term is limited to the Phase I/II HVDC-TF. Definitions related to transmission ratings and rating methodologies for the Phase I/II HVDC-TF are defined by cross-reference to the HVDC TOA, where those terms are fully defined. In addition, where appropriate, the term “Transmission Provider” has been replaced with “Schedule 20A Service Provider.”

Service available over the Phase I/II HVDC-TF in accordance with Schedule 20A-Common is limited to firm and non-firm point-to-point service. Because the Phase I/II HVDC-TF is a controllable HVDC line on which power can only be delivered bidirectionally, network integration service is not available on the Phase I/II HVDC-TF.³⁰ As such, any references to network integration service, the designation of network resources, or related concepts have been removed from Attachment M to Schedule 20A-Common.

The proposed Attachment M to Schedule 20A-Common includes various references to the Schedule 20A Service Providers using AARs and Seasonal HVDC-TF Line Ratings sent to them by the Asset Owners, in evaluating requests for service under Schedule 20A, responding to requests for information on the availability of service, and determining potential curtailments of service under Schedule 20A. As noted above, however, the Asset Owners expect to determine, consistent with Good Utility Practice, that exceptions apply to the Phase I/II HVDC-TF in accordance with Order No. 881 and Attachment M such that AARs will not apply to the Phase I/II HVDC-TF.

Attachment M to Schedule 20A-Common establishes that the Schedule 20A Service Providers will post on their Phase I/II HVDC-TF Transmission Provider Page on the ISO OASIS certain information provided to them by the Asset Owners. For example, each Schedule 20A Service Provider will post on OASIS or another password-protected website any database sent to them by the Asset Owners of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies documenting the use of an alternate HVDC-TF Transmission Line Rating under the HVDC TOA. The Schedule 20A Service Providers also will

³⁰ With rare exceptions, power flows on the Phase I/II HVDC-TF from Québec to New England.

maintain on the password-protected section of their OASIS page or on another password-protected website any documentation of exceptions to the requirements contained in Attachment M to the HVDC TOA sent to the Schedule 20A Service Providers by the Asset Owners.

The Schedule 20A Service Providers voted on July 18 and 19 to support the addition of Attachment M to Schedule 20A-Common.

V. REQUESTED EFFECTIVE DATE

Order No. 881 does not specify an effective date, but does specify an implementation date. The Filing Parties respectfully request that the changes proposed in this Phase I/II HVDC-TF Order No. 881 Compliance Filing be made effective on September 20, 2022, or any subsequent date that the Commission shall so designate. Attachment M to the HVDC TOA and Attachment M to Schedule 20A-Common by their own terms will become applicable in July 2025. The Filing Parties anticipate that further conforming filings may be made denoting specific implementation dates within the next two years.

VI. ADDITIONAL SUPPORTING INFORMATION

35.13(b)(1) – Materials included herewith are as follows:

HVDC TOA – Attachment M Filing

- ◆ This transmittal letter;
- ◆ Marked version of the HVDC TOA – Attachment M illustrating changes from the *pro forma* version of Attachment M in Order No. 881;
- ◆ Clean HVDC TOA – Attachment M incorporating the proposed tariff revisions; and,
- ◆ List of governors, utility regulatory agencies in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont, and others to whom a copy of this filing has been e-mailed.

Schedule 20A-Common – Attachment M Filing

- ◆ Marked version of Schedule 20A-Common – Attachment M illustrating changes in Schedule 20A-Common – Attachment M from the *pro forma* version of Attachment M in Order No. 881;

- ♦ Clean Schedule 20A-Common – Attachment M incorporating the proposed tariff revisions; and,
- ♦ List of governors, utility regulatory agencies in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont, and others to whom a copy of this filing has been e-mailed.

35.13(b)(2) – As noted above, the Filing Parties request that the revisions to the HVDC TOA and Schedule 20A-Common become effective on September 17, 2022, or any subsequent date that the Commission shall so designate.

35.13(b)(3) - Pursuant to Section 17.11(e) of the Participants Agreement, Governance Participants are being served electronically rather than by paper copy. The names and addresses of the Governance Participants are posted on the ISO-NE website at <https://www.iso-ne.com/participate/participant-asset-listings/>. A copy of this transmittal letter and the accompanying materials have also been sent electronically to the governors and electric utility regulatory agencies for the six New England states that comprise the New England Control Area, to the New England Conference of Public Utility Commissioners, and to the Executive Director of the New England States Committee on Electricity. In accordance with Commission rules and practice, there is no need for the Governance Participants or the other entities described above to be included on the Commission's official service list in the captioned proceeding unless such entities become intervenors in this proceeding.

35.13(b)(4) - A description of the materials submitted in this filing is contained in Section VI of this transmittal letter.

35.13(b)(5) - The reasons for this filing are discussed in Sections I, III and IV of this transmittal letter.

35.13(b)(6) - ISO-NE's, the Asset Owners', and the Schedule 20A Service Providers' approval of these revisions is evidenced by this filing.

35.13(b)(7) - The Filing Parties have no knowledge of any relevant expenses or costs of service that have been alleged or judged in any administrative or judicial proceeding to be illegal, duplicative, or unnecessary costs that are demonstrably the product of discriminatory employment practices.

VII. CONCLUSION

The Filing Parties respectfully request that the Commission accept this Phase I/II HVDC-TF Order No. 881 Compliance Filing as submitted and without modification or condition

Respectfully submitted,

By: /s/ Graham Jesmer
Graham Jesmer, Esq.
Regulatory Counsel
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040-2841
(413) 540-4557

Counsel for ISO New England Inc.

By: /s/ Patrick J. Tarmey
Patrick J. Tarmey
National Grid
40 Sylvan Road
Waltham, MA 02451
(781) 907-2190

Counsel for New England Hydro-Transmission Electric
Company, Inc.; New England Hydro-Transmission
Corporation; and New England Electric Transmission
Corporation

By: /s/ Mark Sciarrotta
S. Mark Sciarrotta
Vermont Electric Transmission Company
366 Pinnacle Ridge Road
Rutland, VT 05701
(802) 770-6339

Counsel for Vermont Electric Transmission Company

By: /s/ Mary E. Grover
Mary E. Grover, Esq.
Eversource Energy
247 Station Drive, SE100
Westwood, MA 02090
(617) 424-2105

The Honorable Kimberly D. Bose
July 22, 2022
Page 19 of 19

On behalf of the Schedule 20A Service Providers

Attachments

HVDC TRANSMISSION OPERATING AGREEMENT

ATTACHMENT M

Transmission Line Ratings

General:

Beginning July 12, 2025, the Asset Owners~~The Transmission Provider~~ will implement HVDC-TF Transmission Line Ratings on the HVDC-TF~~transmission lines over which it provides Transmission Service~~, as provided below.

Definitions:

The following definitions apply for purposes of this Attachment:

- (1) “HVDC-TF Transmission Line Rating” means the maximum transfer capability of an HVDC-TF~~transmission line~~, computed in accordance with a written HVDC-TF Transmission Line Rating methodology and consistent with Good Utility Practice, considering the technical limitations -on conductors and relevant transmission equipment (such as thermal flow limits), as well as technical limitations of the New England Transmission System (such as system voltage and stability limits). Relevant transmission equipment may include, but is not limited to, circuit breakers, line traps, and transformers.
- (2) “Ambient-Adjusted Rating” (“AAR”) means an HVDC-TF Transmission Line Rating that:
 - (a) Applies to a time period of not greater than one hour.
 - (b) Reflects an up-to-date forecast of ambient air temperature across the time period to which the rating applies.
 - (c) Reflects the absence of solar heating during nighttime periods, where the local sunrise/sunset times used to determine daytime and nighttime periods are updated at least monthly, if not more frequently.
 - (d) Is calculated at least each hour, if not more frequently.
- (3) “Seasonal HVDC-TF Line Rating” as further defined in any

applicable ISO New England Operating Documents, means an HVDC-TF Transmission Line Rating that:

- (a) Applies to a specified season, where seasons are defined ~~by the Transmission Provider to~~ include not fewer than four seasons in each year, and to reasonably reflect portions of the year where expected high temperatures are relatively consistent.
 - (b) Reflects ~~an~~-up-to-date ~~forecast of~~analysis of historical ambient air temperatures across the relevant season over which the rating applies.
 - (c) Is calculated annually, if not more frequently, for each season in the future for which Phase I/II HVDC-TF Service under Schedule 20A to the ISO OATT~~Transmission Service~~ can be requested.
- (4) “Near-Term Phase I/II HVDC-TF Transmission Service” shall have the meaning set forth in Schedule 20A to the ISO OATTs ~~Transmission Service which ends not more than 10 days after the Transmission Service request date. When the description of obligations below refers to either a request for information about the availability of potential Transmission Service (including, but not limited to, a request for ATC), or to the posting of ATC or other information related to potential service, the date that the information is requested or posted will serve as the Transmission Service request date. “Near Term Transmission Service” includes any Point To-Point Transmission Service, Network Resource designations, or secondary service where the start and end date of the designation or request is within the next 10 days.~~
- (5) “Emergency HVDC-TF Rating,” as further defined in any applicable ISO New England Operating Documents, means an HVDC-TF Transmission Line Rating that reflects operation for a specified, finite period, rather than reflecting continuous operation. An Emergency HVDC-TF Rating may assume an acceptable loss of equipment life or other physical or safety limitations for the equipment involved.

System Reliability:

If ~~an Asset Owner~~the Transmission Provider reasonably determines, consistent with Good Utility Practice, that the temporary use of an HVDC-TF Transmission

Line Rating for a facility of that Asset Owner different than would otherwise be required by this Attachment is necessary to ensure the safety and reliability of the New England Transmission System, then the Asset Owner~~Transmission Provider~~ may use such an alternate rating. The applicable Asset Owner and the ISO shall confirm the use of such an alternate rating consistent with any applicable procedures established in ISO New England Operating Documents and consistent with this HVDC TOA. The Asset Owner~~Transmission Provider~~ must document in its database of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies on OASIS or another password-protected website, as required by this Attachment, the use of an alternate HVDC-TF Transmission Line Rating under this paragraph, including the nature of and basis for the alternate rating, the date and time that the alternate rating was initiated, and (if applicable) the date and time that the alternate rating was withdrawn and the standard rating became effective again.

Obligations of the Asset Owners~~Transmission Provider~~:

The Asset Owners~~Transmission Provider~~ will have the following obligations:

~~The Transmission Provider must use AARs as the relevant Transmission Line Ratings when performing any of the following functions: (1) evaluating requests for Near Term Transmission Service; (2) responding to requests for information on the availability of potential Near Term Transmission Service (including requests for ATC or other information related to potential service); or (3) posting ATC or other information related to Near Term Transmission Service to the Transmission Provider's OASIS site or another password protected website.~~

~~The Transmission Provider must use AARs as the relevant Transmission Line Ratings when determining whether to curtail (under section 13.6) Firm Point To-Point Transmission Service or when determining whether to curtail and/or interrupt (under section 14.7) Non Firm Point To Point Transmission Service if such curtailment and/or interruption is both necessary because of issues related to flow limits on transmission lines and anticipated to occur (start and end) within 10 days of such determination. For determining whether to curtail or interrupt Point To Point Transmission Service in other situations, the Transmission Provider must use Seasonal Line Ratings as the relevant Transmission Line Ratings.~~

~~The Transmission Provider must use AARs as the relevant Transmission Line Ratings when determining whether to curtail (under section 33) or redispatch (under sections 30.5 and/or 33) Network Integration Transmission Service or secondary service if such curtailment or redispatch is both necessary because of issues related to flow limits on transmission lines and anticipated to occur (start~~

~~and end) within 10 days of such determination. For determining the necessity of curtailment or redispatch of Network Integration Transmission Service or secondary service in other situations, the Transmission Provider must use Seasonal Line Ratings as the relevant Transmission Line Ratings.~~

~~The Transmission Provider must use Seasonal Line Ratings as the relevant Transmission Line Ratings when evaluating requests for and whether to curtail, interrupt, or redispatch any Transmission Service not otherwise covered above in this section (including, but not limited to, requests for non-Near Term Transmission Service or requests to designate or change the designation of Network Resources or Network Load), when developing any ATC or other information posted or provided to potential customers related to such services. The Transmission Provider must use Seasonal Line Ratings as a recourse rating in the event that an AAR otherwise required to be used under this Attachment is unavailable.~~

~~Each Asset Owner~~The Transmission Provider must use uniquely determined Emergency HVDC-TF Ratings, as specified in any applicable ISO New England Operating Documents and as determined consistent with the rights and obligations of the Parties under this HVDC TOA, ~~for contingency analysis in the operations horizon~~ and in post-contingency simulations of constraints. Such uniquely determined Emergency HVDC-TF Ratings must also include separate AAR calculations for each Emergency HVDC-TF Rating duration used.

The Asset Owners shall, consistent with this Attachment, this HVDC TOA, and any applicable ISO New England Operating Documents, calculate and electronically transmit AARs, Emergency HVDC-TF Ratings and Seasonal HVDC-TF Line Ratings to the ISO and Schedule 20A Service Providers.

In ~~developing~~ utilizing forecasts of ambient air temperature for AARs ~~and Seasonal Line Ratings~~, and evaluating historical temperatures for Seasonal HVDC-TF Line Ratings, the ~~Asset Owners~~Transmission Provider ~~shall~~must develop utilize such forecasts and historical temperatures consistent with Good Utility Practice and on a non-discriminatory basis.

Postings to OASIS or another password-protected website: ~~The Asset Owners~~The Transmission Provider must send to the Schedule 20A Service Providers to maintain on the password-protected section of the Schedule 20A Service Providers'its OASIS page or on another password-protected website a database of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies.

The database must include a full record of all HVDC-TF Transmission Line

Ratings, both as used in real-time operations, and as used for all future periods for which ~~Phase I/II HVDC-TF~~ Transmission Service is offered. Any postings of temporary alternate HVDC-TF Transmission Line Ratings or exceptions used under the System Reliability section above or the Exceptions section below, respectively, are considered part of the database. The database must include records of which HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies were in effect at which times over at least the previous five years, including records of which temporary alternate HVDC-TF Transmission Line Ratings or exceptions were in effect at which times during the previous five years. Each record in the database must indicate which transmission line the record applies to, and the date and time the record was entered into the database. The database must be maintained such that users can view, download, and query data in standard formats, using standard protocols.

Sharing with Transmission Providers: ~~Each Asset Owner~~ The Transmission Provider must share, upon request by any ~~t~~ Transmission p Provider and in a timely manner, the following information:

- (1) HVDC-TF Transmission Line Ratings for each period for which HVDC-TF Transmission Line Ratings are calculated, with updated ratings shared each time HVDC-TF Transmission Line Ratings are calculated, and
- (2) Written HVDC-TF Transmission Line Rating methodologies used to calculate the Transmission Line Ratings in (1) above.

Exceptions: Where ~~an Asset Owner~~ the Transmission Provider determines, consistent with Good Utility Practice, that the HVDC-TF Transmission Line Rating of a transmission line is not affected by ambient air temperature or solar heating, the ~~Asset Owner~~ Transmission Provider may, consistent with the rights and obligations of the Parties under this HVDC TOA, provide-use an HVDC-TF Transmission Line Rating for that transmission line that is not an AAR or Seasonal HVDC-TF Line Rating. Examples of such a transmission line may include (but are not limited to): (1) a transmission line for which the technical transfer capability of the limiting conductors and/or limiting transmission equipment is not dependent on ambient air temperature or solar heating; or (2) a transmission line whose transfer capability is limited by a ~~T~~ transmission S system limit (such as a system voltage or stability limit) which is not dependent on ambient air temperature or solar heating. The ~~Asset Owner~~ Transmission Provider must document in its database of HVDC-TF Transmission Line Ratings and Transmission Line Rating methodologies to be posted on the OASIS or another password-protected website maintained by the Schedule 20A Service Providers any exceptions to the requirements contained in this Attachment initiated under

this paragraph, including the nature of and basis for each exception, the date(s) and time(s) that the exception was initiated, and (if applicable) the date(s) and time(s) that each exception was withdrawn and the standard rating became effective again. If the technical basis for an exception under this paragraph changes, then the applicable Asset Owner~~Transmission Provider~~ must update the relevant HVDC-TF Transmission Line Rating(s) in a timely manner. Each Asset Owner~~The Transmission Provider~~ must reevaluate any exceptions taken under this paragraph at least every five years.

HVDC TRANSMISSION OPERATING AGREEMENT

ATTACHMENT M

Transmission Line Ratings

General:

Beginning July 12, 2025, the Asset Owners will implement HVDC-TF Transmission Line Ratings on the HVDC-TF, as provided below.

Definitions:

The following definitions apply for purposes of this Attachment:

- (1) “HVDC-TF Transmission Line Rating” means the maximum transfer capability of an HVDC-TF, computed in accordance with a written HVDC-TF Transmission Line Rating methodology and consistent with Good Utility Practice, considering the technical limitations on conductors and relevant transmission equipment (such as thermal flow limits), as well as technical limitations of the New England Transmission System (such as system voltage and stability limits). Relevant transmission equipment may include, but is not limited to, circuit breakers, line traps, and transformers.
- (2) “Ambient-Adjusted Rating” (“AAR”) means an HVDC-TF Transmission Line Rating that:
 - (a) Applies to a time period of not greater than one hour.
 - (b) Reflects an up-to-date forecast of ambient air temperature across the time period to which the rating applies.
 - (c) Reflects the absence of solar heating during nighttime periods, where the local sunrise/sunset times used to determine daytime and nighttime periods are updated at least monthly, if not more frequently.
 - (d) Is calculated at least each hour, if not more frequently.
- (3) “Seasonal HVDC-TF Line Rating” as further defined in any applicable ISO New England Operating Documents, means an HVDC-TF Transmission Line Rating that:

- (a) Applies to a specified season, where seasons are defined to include not fewer than four seasons in each year, and to reasonably reflect portions of the year where expected high temperatures are relatively consistent.
 - (b) Reflects up-to-date historical ambient air temperatures across the relevant season over which the rating applies.
 - (c) Is calculated annually, if not more frequently, for each season in the future for which Phase I/II HVDC-TF Service under Schedule 20A to the ISO OATT can be requested.
- (4) “Near-Term Phase I/II HVDC-TF Service” shall have the meaning set forth in Schedule 20A to the ISO OATT.
- (5) “Emergency HVDC-TF Rating,” as further defined in any applicable ISO New England Operating Documents, means an HVDC-TF Transmission Line Rating that reflects operation for a specified, finite period, rather than reflecting continuous operation. An Emergency HVDC-TF Rating may assume an acceptable loss of equipment life or other physical or safety limitations for the equipment involved.

System Reliability:

If an Asset Owner reasonably determines, consistent with Good Utility Practice, that the temporary use of an HVDC-TF Transmission Line Rating for a facility of that Asset Owner different than would otherwise be required by this Attachment is necessary to ensure the safety and reliability of the New England Transmission System, then the Asset Owner may use such an alternate rating. The applicable Asset Owner and the ISO shall confirm the use of such an alternate rating consistent with any applicable procedures established in ISO New England Operating Documents and consistent with this HVDC TOA. The Asset Owner must document in its database of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies on OASIS or another password-protected website, as required by this Attachment, the use of an alternate HVDC-TF Transmission Line Rating under this paragraph, including the nature of and basis for the alternate rating, the date and time that the alternate rating was initiated, and (if applicable) the date and time that the alternate rating was withdrawn and the standard rating became effective again.

Obligations of the Asset Owners:

The Asset Owners will have the following obligations:

Each Asset Owner must use uniquely determined Emergency HVDC-TF Ratings, as specified in any applicable ISO New England Operating Documents and as determined consistent with the rights and obligations of the Parties under this HVDC TOA, for contingency analysis and in post-contingency simulations of constraints. Such uniquely determined Emergency HVDC-TF Ratings must also include separate AAR calculations for each Emergency HVDC-TF Rating duration used.

The Asset Owners shall, consistent with this Attachment, this HVDC TOA, and any applicable ISO New England Operating Documents, calculate and electronically transmit AARs, Emergency HVDC-TF Ratings and Seasonal HVDC-TF Line Ratings to the ISO and Schedule 20A Service Providers.

In utilizing forecasts of ambient air temperature for AARs and evaluating historical temperatures for Seasonal HVDC-TF Line Ratings, the Asset Owners shall utilize such forecasts and historical temperatures consistent with Good Utility Practice and on a non-discriminatory basis.

Postings to OASIS or another password-protected website: The Asset Owners must send to the Schedule 20A Service Providers to maintain on the password-protected section of the Schedule 20A Service Providers' OASIS page or on another password-protected website a database of HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies.

The database must include a full record of all HVDC-TF Transmission Line Ratings, both as used in real-time operations, and as used for all future periods for which Phase I/II HVDC-TF Service is offered. Any postings of temporary alternate HVDC-TF Transmission Line Ratings or exceptions used under the System Reliability section above or the Exceptions section below, respectively, are considered part of the database. The database must include records of which HVDC-TF Transmission Line Ratings and HVDC-TF Transmission Line Rating methodologies were in effect at which times over at least the previous five years, including records of which temporary alternate HVDC-TF Transmission Line Ratings or exceptions were in effect at which times during the previous five years. Each record in the database must indicate which transmission line the record applies to, and the date and time the record was entered into the database. The database must be maintained such that users can view, download, and query data in standard formats, using standard protocols.

Sharing with Transmission Providers: Each Asset Owner must share, upon request by any transmission provider and in a timely manner, the following information:

- (1) HVDC-TF Transmission Line Ratings for each period for which HVDC-TF Transmission Line Ratings are calculated, with updated ratings shared each time HVDC-TF Transmission Line Ratings are calculated, and
- (2) Written HVDC-TF Transmission Line Rating methodologies used to calculate the Transmission Line Ratings in (1) above.

Exceptions: Where an Asset Owner determines, consistent with Good Utility Practice, that the HVDC-TF Transmission Line Rating of a transmission line is not affected by ambient air temperature or solar heating, the Asset Owner may, consistent with the rights and obligations of the Parties under this HVDC TOA, provide an HVDC-TF Transmission Line Rating for that transmission line that is not an AAR or Seasonal HVDC-TF Line Rating. Examples of such a transmission line may include (but are not limited to): (1) a transmission line for which the technical transfer capability of the limiting conductors and/or limiting transmission equipment is not dependent on ambient air temperature or solar heating; or (2) a transmission line whose transfer capability is limited by a transmission system limit (such as a system voltage or stability limit) which is not dependent on ambient air temperature or solar heating. The Asset Owner must document in its database of HVDC-TF Transmission Line Ratings and Transmission Line Rating methodologies to be posted on the OASIS or other password-protected website maintained by the Schedule 20A Service Providers any exceptions to the requirements contained in this Attachment initiated under this paragraph, including the nature of and basis for each exception, the date(s) and time(s) that the exception was initiated, and (if applicable) the date(s) and time(s) that each exception was withdrawn and the standard rating became effective again. If the technical basis for an exception under this paragraph changes, then the applicable Asset Owner must update the relevant HVDC-TF Transmission Line Rating(s) in a timely manner. Each Asset Owner must reevaluate any exceptions taken under this paragraph at least every five years.

New England Governors, State Utility Regulators and Related Agencies*

Connecticut

The Honorable Ned Lamont
Office of the Governor
State Capitol
210 Capitol Ave.
Hartford, CT 06106
bob.clark@ct.gov

Connecticut Attorney General's Office
165 Capitol Avenue
Hartford, CT 06106
John.wright@ct.gov
Lauren.bidra@ct.gov

Connecticut Department of Energy and
Environmental Protection
79 Elm Street
Hartford, CT 06106
Eric.annes@ct.gov
Robert.snook@ct.gov

Connecticut Public Utilities Regulatory Authority
10 Franklin Square
New Britain, CT 06051-2605
steven.cadwallader@ct.gov
robert.luysterborghs@ct.gov
Seth.Hollander@ct.gov
Robert.Marconi@ct.gov

Maine

The Honorable Janet Mills
One State House Station
Office of the Governor
Augusta, ME 04333-0001
Jeremy.kennedy@maine.gov
Elise.baldacci@maine.gov

Maine Public Utilities Commission
18 State House Station
Augusta, ME 04333-0018
Maine.puc@maine.gov

Massachusetts

The Honorable Charles Baker
Office of the Governor
State House
Boston, MA 02133

Massachusetts Attorney General's Office

One Ashburton Place
Boston, MA 02108
rebecca.tepper@state.ma.us

Massachusetts Department of Energy
Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
Robert.hoaglund@mass.gov
ben.dobbs@state.ma.us

Massachusetts Department of Public Utilities
One South Station
Boston, MA 02110
Nancy.Stevens@state.ma.us
morgane.treanton@state.ma.us
William.J.Anderson2@mass.gov
dpu.electricsupply@mass.gov

New Hampshire

The Honorable Chris Sununu
Office of the Governor
26 Capital Street
Concord NH 03301

New Hampshire Department of Energy
21 South Fruit Street, Ste 10
Concord, NH 03301
Jared.S.Chicoine@energy.nh.gov
Christopher.j.ellmsjr@energy.nh.gov
Thomas.C.Frantz@energy.nh.gov
Karen.P.Cramton@energy.nh.gov
Amanda.O.Noonan@energy.nh.gov
joshua.w.elliott@energy.nh.gov

New Hampshire Public Utilities Commission
21 South Fruit Street, Ste. 10
Concord, NH 03301-2429
david.j.shulock@energy.nh.gov
RegionalEnergy@puc.nh.gov

Rhode Island

The Honorable Daniel McKee
Office of the Governor
82 Smith Street
Providence, RI 02903
Rosemary.powers@governor.ri.gov

New England Governors, State Utility Regulators and Related Agencies*

Rhode Island Office of Energy Resources
One Capitol Hill
Providence, RI 02908
christopher.kearns@energy.ri.gov
nicholas.ucci@energy.ri.gov

Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888
ronald.gerwatowski@puc.ri.gov
todd.bianco@puc.ri.gov

Vermont

The Honorable Phil Scott
Office of the Governor
109 State Street, Pavilion
Montpelier, VT 05609
jason.gibbs@vermont.gov

Vermont Public Utility Commission
112 State Street
Montpelier, VT 05620-2701
mary-jo.krolewski@vermont.gov
Margaret.cheney@vermont.gov

Vermont Department of Public Service
112 State Street, Drawer 20
Montpelier, VT 05620-2601
bill.jordan@vermont.gov
june.tierney@vermont.gov

New England Governors, Utility Regulatory and Related Agencies

Jay Lucey
Coalition of Northeastern Governors
400 North Capitol Street, NW, Suite 370
Washington, DC 20001
coneg@sso.org

Heather Hunt, Executive Director
New England States Committee on Electricity
424 Main Street
Osterville, MA 02655
HeatherHunt@nescoe.com
JasonMarshall@nescoe.com
JeffBentz@nescoe.com

Meredith Hatfield, Executive Director
New England Conference of Public Utilities
Commissioners
72 N. Main Street
Concord, NH 03301
mhatfield@necpuc.org

Matthew Nelson, President
New England Conference of Public Utilities
Commissioners
One South Station
Boston, MA 02110
matthew.nelson@mass.gov