

# CONSENT TO PROCEED AND FIRST AMENDMENT TO

#### COST REIMBURSEMENT AGREEMENT

Dated as of September [30], 2015 (the "Amendment Effective Date")

Reference is made to that certain Cost Reimbursement Agreement made and entered into as of November 21, 2014 between NIAGARA MOHAWK POWER CORPORATION and the NEW YORK POWER AUTHORITY (the "Agreement"). Unless otherwise defined herein, all capitalized terms in this Consent to Proceed and First Amendment to Cost Reimbursement Agreement ("First Amendment") shall have the meanings set forth in the Agreement.

WHEREAS, Customer has requested changes to the existing scope of Work under the Agreement; and

WHEREAS, pursuant to Section 26.11 of the Agreement, the Parties wish to enter into this amendment to implement such changes in the existing scope of Work and related changes to the Estimated Cost of Work; and

WHEREAS, Customer wishes to deliver its Consent to Proceed with the Implementation Work as contemplated by Section 7.2 of the Agreement;

NOW, THEREFORE, in consideration of the promises and mutual agreements contained herein and of other consideration, the receipt and sufficiency of which are hereby acknowledged, each of the Parties agrees as follows:

- 1. The Agreement shall be amended as follows, such amendments to be effective from and after the Amendment Effective Date:
  - A. Section 6.1 of the Agreement is hereby deleted and replaced in its entirety with the following:

"The current good faith estimate of the total Company Reimbursable Costs, exclusive of applicable taxes, to complete the Work is Four Million One Hundred and Thirteen Thousand Dollars (\$4,113,000) ("Estimated Cost of Work"). The Estimated Cost of Work, including any revisions thereto, is an estimate only. The Estimated Cost of Work (and any revisions thereto) and any other estimates provided under or in connection with this Agreement or the Work shall not limit Customer's obligation to pay Company for all Company Reimbursable Costs actually incurred by Company and/or its affiliates."

- B. <u>Schedule A</u> to the Agreement is hereby deleted and replaced in its entirety by the revised <u>Schedule A</u> (including Annex 1 thereto) attached to this First Amendment.
- 2. Customer hereby gives its consent for Company to proceed with the Implementation Work. The Parties agree that (i) the term "Implementation Work" as referred to herein and in the Agreement shall mean the Work described in PART 2 of the revised Schedule A attached to this First Amendment (including Annex 1 thereto). This Section 2 shall constitute delivery of Customer's Notice to Proceed as contemplated by the Agreement, including Section 7.2 thereof.

Except as specifically amended above, the Agreement shall remain in full force and effect in accordance with its terms, is hereby ratified and confirmed, and shall govern the rights and obligations of the Parties. This First Amendment is for the use and benefit of the Parties only, and not for the use and benefit of any other person, party, or entity.

This First Amendment may not be amended or modified in any way, and none of its provisions may be waived, except by a writing signed by an authorized representative of the Party against whom the amendment, modification or waiver is sought to be enforced.

This First Amendment may be executed in one or more counterparts, each of which will be deemed to be an original copy of this First Amendment, and all of which, when taken together, shall constitute one and the same agreement. The exchange of copies of this First Amendment and of signature pages by facsimile or other electronic transmission (including, without limitation, exchange of PDFs by electronic mail) shall constitute effective execution and delivery of this First Amendment as to the Parties and may be used in lieu of the original First Amendment for all purposes.

[Signatures are on following page.]

IN WITNESS WHEREOF, the Parties have caused this First Amendment to be executed on their behalf by their respective duly authorized signatories as of the Amendment Effective Date.

# NIAGARA MOHAWK POWER CORPORATION

Name:

William L. Males

Title:

Dir., Transmission Commercial Services

09-16-2015

**NEW YORK POWER AUTHORITY** 

By: Unchew asternar

Name: ANDREW C SUMNER. Title: VP-PROTECT MGT

#### Schedule A: Scope of Work

Company shall, engineer, design, procure, construct, test and commission the changes to the Company's electric delivery facilities described below.

#### Please Note:

This Scope of Work ("<u>Scope</u>") covers National Grid system upgrade facilities ("<u>SUF</u>") identified to date directly affected by the Marcy South Series Compensation Project.

The identified SUFs consist of multiple protective relaying upgrades, installation of addition telecommunications, and the replacement of multiple breakers at existing National Grid facilities. National Grid facilities affected include Edic, New Scotland, Clay and Volney stations.

#### PART 1 - Preliminary Engineering & Design Work

Company shall perform the preliminary engineering and design work necessary to procure, construct, test and commission the changes to the Company's electric delivery facilities contemplated by PART 2 of this Schedule A. Upon completion of this preliminary engineering and design work, Company shall provide the Customer with a revised Estimated Cost of Work (+/- 25%), and, following delivery of such revised Estimated Cost of Work, shall suspend Work pending Customer's delivery of its Consent to Proceed.

Note: Company has completed the above-referenced preliminary engineering and design work and has provided the Customer with a Revised Preliminary Engineering Report for National Grid Work to Support MSSC Project dated August 12, 2015, which includes the revised Estimated Cost of Work (+/- 25%).

# PART 2 - Implementation Work

Company shall perform final engineering and design for, and procure, construct, test and commission, the changes to the Company's electric delivery facilities as contemplated by (i) Sections IA, IIA, IIIA, and IVA of the Revised Preliminary Engineering Report for National Grid Work to Support MSSC Project dated August 12, 2015 attached as Annex 1 to this <u>Schedule A</u> (the "<u>Preliminary Engineering Report</u>"), and (ii) the portion of the Preliminary Engineering Report entitled "DISTRIBUTION LINE INTERFERENCE MODIFICATION".

# Annex 1 to Schedule A

# REVISED PRELIMINARY ENGINEERING REPORT FOR NATIONAL GRID WORK TO SUPPORT MSSC PROJECT

# REVISED PRELIMINARY ENGINEERING REPORT For NATIONAL GRID WORK to SUPPORT MSSC PROJECT

#### August 12, 2015

Based upon the preliminary engineering and design work that has been performed, National Grid is seeking approval to proceed with the scope of work as defined in the Cost Reimbursement Agreement, Schedule A, Part 2, per the original scope as modified per the specific changes and clarifications below. Also included is the updated estimated cost per Station. If no clarifications or changes are provided below, the work will be performed per the original scope.

### I. Edic Station work - Original Scope

Edic-Fraser Line 24-40 will need relaying and telecommunications upgrades along with breaker replacements.

### Edic Station Upgrades

Replace two (2) existing circuit breakers (R400 & R915) with ones capable of handling the anticipated Transient Recovery Voltage ("TRV");

Replace / add six (6) line and bus Capacitance Coupled Voltage Transformers ("<u>CCVTs</u>");

Replace wave trap;

New cable and raceway for separation between system 'A' and 'B' packages;

#### Protection

Replace existing system 'A' and 'B' line protection packages with microprocessor based series compensated line protection packages;

#### Control & Integration (C&I)

Reuse existing RTU / EMS points;

Upgrade controls to current standards;

#### **Telecommunications**

Replace existing system 'A' protection package power line carrier ("<u>PLC</u>") equipment with new RFL PLC DCUB and Direct Transfer Trip ("<u>DTT</u>") communications;

Replace existing system 'B' protection package audio tone equipment with new audio tone equipment with POTT and DTT communications;

# Assumptions, Clarifications and Exceptions

New circuit breakers referred to above are assumed to be of similar physical size as the existing circuit breakers;

Existing Edic control house does not have the necessary space for additional panels, therefore, this Scope assumes that any new panels

will be installed in outdoor panels or in a new Edic control house that may be constructed by National Grid;

This Scope assumes that the existing above-referenced RTU / EMS points are adequate for reuse, if outdoor cabinets utilized.

Marcy-Edic Line UE1-7 will need relaying and telecommunications upgrades.

### Edic Station Upgrades

New cable and raceway for separation between system 'A' and 'B' packages;

#### Protection

Replace existing system 'A' pilot distance protection package with a microprocessor based line differential relay protection package.

Replace existing system 'B' line differential protection package with a microprocessor based line differential relay protection package.

Replace existing system 'A' DTT relay with a microprocessor based one for breaker failure DTT over fiber;

# Control & Integration (C&I)

Reuse existing RTU / EMS points;

#### **Telecommunications**

Replace existing system 'A' protection package pilot communication equipment with fiber optic equipment;

### Assumptions, Clarifications and Exceptions

Existing Edic control house does not have the necessary space for additional panels, therefore, this Scope assumes any new panels will be installed in outdoor panels or in a new Edic control house may be constructed by National Grid;

This Scope assumes that the existing above-referenced RTU / EMS points are adequate for reuse, if outdoor cabinets utilized;

This Scope also assumes that redundant fiber optic cable will be run between Marcy and Edic by others; therefore, work and cost for this are not included in the Scope.

#### Edic-Clay Lines 15 and 16

#### Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package at each terminal.

#### Edic-New Scotland (14) Line

Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package( SEL 421-5) at Edic Terminal.

Fitzpatrick-Edic (FE-1) Line

Protection

Replacement of existing 'A' and 'B' protection packages with microprocessor based series compensated line protection packages (GE D60 and SEL 421-5) at Edic Terminal.

# IA. Edic Station REVISED and Updated Scope (see Reference Drawing # D-66895-C, sht 1)

- Due to NPCC Bulk Power separation criteria and the overcrowded conditions existing in the Edic control building, the new protective relays and telecommunications equipment for MSSC/TOTS must be installed in a new control building that will be constructed by National Grid. Evaluation of site conditions has led to a determination that the upgrades cannot be performed using outdoor panels or cabinets while still meeting Bulk Power System (BPS) separation criteria.
- 2. The Edic-Fraser Line 24-40 protective relays and telecommunications are being designed as follows:
  - The A line protection package will be a directional comparison unblocking (DCUB) scheme using a GE D60 and RFL 9780 carrier equipment. Switch onto fault and stub bus protection shall be utilized.
  - The B line protection package will be a permissive overreaching transfer trip (POTT) scheme using an SEL-421-5 and RFL GARD8000 tone equipment. Switch onto fault protection shall be utilized.
- 3. The Marcy-Edic Line UE1-7 protective relays and telecommunications are being designed as follows:

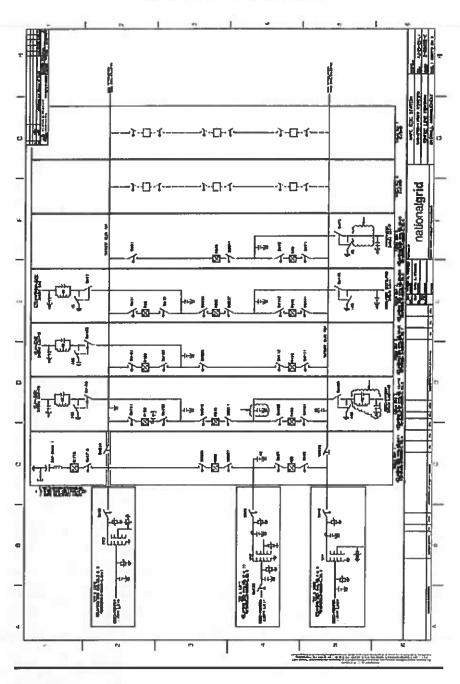
- The A line protection package will be a line differential SEL-411L. Redundant fiber pairs will be used for communication to Marcy. Switch onto fault and stub bus protection shall be utilized. Back up distance functions will be enabled for backup when both differential channels are lost.
- The B line protection package will be a line differential SEL-311L. Redundant fiber pairs will be used for communication to Marcy. Switch onto fault and stub bus protection shall be utilized. Back up distance functions will be enabled for backup when both differential channels are lost.
- A redundant direct transfer trip scheme for breaker failure at Marcy will be used. The A and B packages will use mirrored bits on fiber using SEL-351 relays. The schemes will trip the breakers and drive the reclosing relay to lockout.
- The new, second fiber optic channel from Marcy (SkyWrap to be installed by Others for NYPA) will require the fiber pairs to be directed from the NYPA splice box at the Edic switchyard entry to the Edic control building, and terminated / patched by National Grid to the relay panels in order to complete the fiber path.
- 4. The Edic-New Scotland Line 14 protective relays and telecommunications are being designed as follows:
  - The A line protection package will be a permissive overreaching transfer trip (POTT) scheme using a GE D60 and RFL IMUX 2000 multiplexer with DS-TT cards.
  - The B line protection package will be a directional comparison unblocking (DCUB) scheme using an SEL-421-5 and RFL IMUX 2000 multiplexer with DS-TT cards.
- 5. The Edic-Clay Lines 2-15 and 1-16 protective relays have been designed and installed as follows.
  - The A line protection relay on each line has been replaced with an SEL-421-5 with series compensation settings capabilities. The relays have been programmed and placed in service on 5/27/15.
  - The existing B line protection relay on each line (ERL Phase LPro-2100) has been reprogrammed with new settings to accommodate the series compensation.
- 6. Certain cabling and control cabling costs were added not identified in the first version of the preliminary engineering report.

# IB. Edic Station Revised and Updated Cost Estimate

Company Field Labor = \$ 448,000 Company Project Management and Engineering = \$186,000 Contract Labor = \$337,000 Materials = \$581,000 Transportation/Equipment = \$84,000 Other = \$16,000 Company Overheads and Costs = \$430,000 Contingency (25%) = \$520,000

TOTAL = \$2,602,000

# **EDIC STATION DIAGRAM**



Gilboa-New Scotland Line 1 will need relaying upgrades.

Protection

Replace existing system 'A' line protection package with a microprocessor based series compensated line protection package;

Control & Integration (C&I)

Reuse existing RTU / EMS points;

Assumptions, Clarifications and Exceptions

This Scope assumes that adequate system 'A' and 'B' separation exists.

Edic-New Scotland (14) Line

Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package (SEL 421-5) at New Scotland Terminal.

Marcy-New Scotland (18) Line

Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package (SEL 421-5) at New Scotland Terminal.

# IIA. New Scotland - Updated Scope (see Reference Drawings C-8059-E shts 4,7, 8)

- The Original Scope assumed that New Scotland Station had proper A and B separation to meet NPCC Bulk Power criteria. During preparation of National Grid's technical scope, it was determined that control buildings 1 and 2 do not have proper separation. Only control building 3 has proper separation. In order to ensure proper separation, it was determined to install all the new relays in control building 3.
- 2. The Gilboa-New Scotland Line 1 protective relays and telecommunications are being designed as follows:

The A line relay protection package will be a microprocessor-based directional distance relay (GE-D60) in a permissive overreaching (POTT) scheme. An RFL GARD8000 will be used for communication to Gilboa station. The GARD8000 will be programmed to match the RFL9745 installed at Gilboa. A leased line

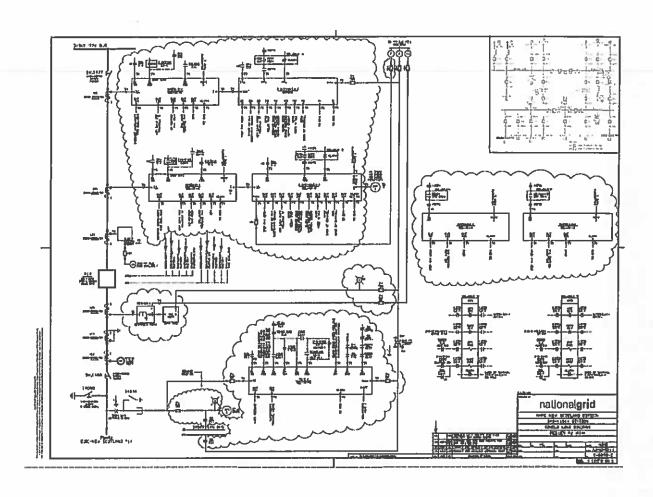
- will be used for the communication medium. This relay and telecommunications package will be installed in control building 3.
- The existing B line relay protection will be renamed and re-used, with updated relay settings to accommodate the series compensation. The 21TTB/46TTB/LN1 relay will be renamed to 94TTB/LN1 and all potential and current sources will be disconnected.
- 3. The Edic-New Scotland Line 14 protective relays and telecommunications are being designed as follows:
  - To achieve proper A and B separation, the new relays for Line 14 will be installed in control building 3. This will necessitate replacement of both the A and B line protection packages.
  - The A line relay protection package will be a microprocessor-based directional distance relay (GE D60) in a permissive overreaching (POTT) scheme. A DS-TT card in an RFL IMUX 2000 will be used for communication to Edic station.
  - The B line relay protection package will be a microprocessor-based directional distance relay (SEL-421-5) configured in a permissive overreaching (POTT) scheme. A DS-TT card in an RFL IMUX 2000 will be used for communication to Edic Station.
- 4. The Marcy-New Scotland Line 18 protective relays and telecommunications are being designed as follows:
  - To achieve proper A and B separation, the new relays for Line 18 will be installed in control building 3. This will necessitate replacement of both the A and B line protection packages.
  - The A line relay protection package will be a microprocessor-based directional distance relay (GE D60) in a directional comparison unblocking (DCUB) scheme. An RFL 9780 FSK power line carrier set will be used for communication to Marcy station.
  - The B line relay protection package will be a microprocessor-based directional distance relay (SEL-421-5) configured in a permissive overreaching transfer trip (POTT) scheme. An RFL GARD8000 will be used for communication to Marcy station. The GARD8000 will be programmed to match the RFL9745 installed at Marcy. A leased phone line will be used for the communication medium.

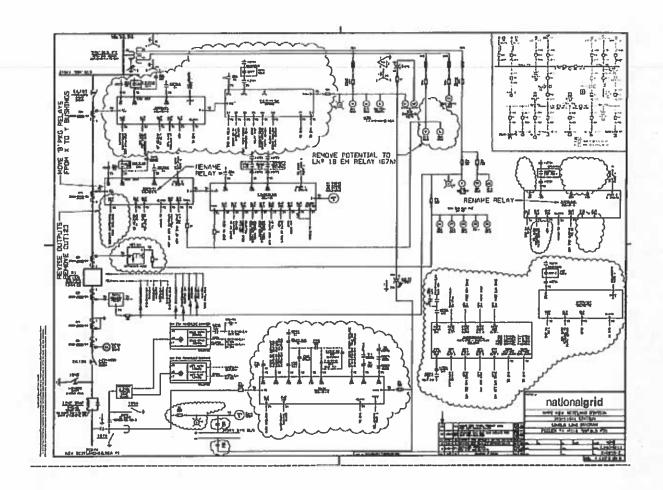
# IIB. Total Estimated Cost for New Scotland Scope as revised;

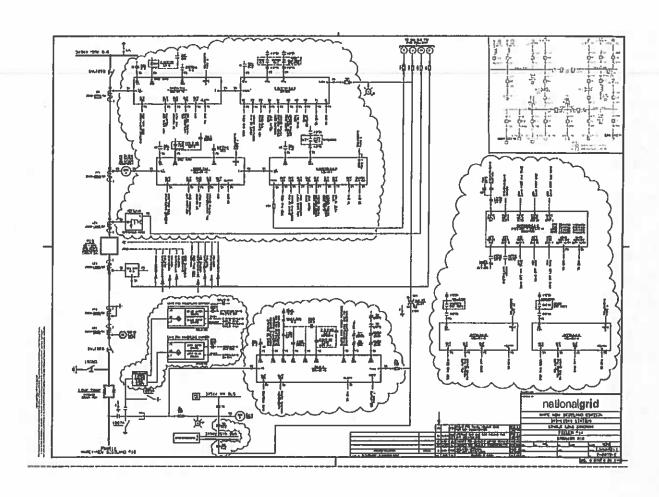
Company Field Labor = \$256,000 Company Project Management and Engineering = \$133,000 Contract Labor = \$36,000 Materials = \$261,000 Transportation/Equipment = \$33,000 Other = \$8,000 Company Overheads and Corporate Costs = \$274,000 Contingency (25%) = \$249,000

TOTAL = \$1,250,000

New Scotland Diagrams







#### Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package;

Control & Integration (C&I)

Reuse existing RTU / EMS points

# IIIA. Volney Station- Updated Scope

The Volney-Marcy Line 19 protective relays have been designed and installed as of 5/13/15 as follows.

The existing B line protection relay (SEL-321) has been replaced with an SEL-421-5 with series compensation settings capabilities. The relay has been programmed and placed in service.

The existing A line protection relay (ERL Phase LPro-2100) has been reprogrammed with new settings to accommodate the series compensation.

# IIIB. Volney Station Cost Estimate

Company Field Labor = \$27,000
Company Project Management and Engineering = \$12,000
Contract Labor = \$16,000
Materials = \$8,000
Transportation/Equipment = \$3,000
Other = \$1,000
Company Overheads and Costs = \$15,000
Contingency (5%) = \$4,000

TOTAL = \$86,000

#### Protection

Replace existing 'B' protection package with a microprocessor based series compensated line protection package at each terminal.

### IVA. Clay Station Updated Scope

1. The Edic-Clay Lines 2-15 and 1-16 protective relays have been designed and installed as of 5/27/15 as follows.

The B line protection relay on each line has been replaced with an SEL-421-5 with series compensation settings capabilities. The relays have been programmed and placed in service.

The existing A line protection relay on each line (ERL Phase LPro-2100) has been reprogrammed with new settings to accommodate the series compensation.

# IVB. Clay Station Updated Estimate

Company Field Labor = \$59,000
Company Project Management and Engineering = \$10,000
Contract Labor = \$20,000
Materials = \$25,000
Transportation/Equipment = \$7,000
Other = \$1000
Company Overheads and Costs = \$34,000
Contingency (5%) = \$8,000

TOTAL = \$167,000

For modification to our distribution system to remove a potential high voltage line interference related to changes caused by the MSSC Project affecting NYPA's 345 kV UCCs-41 transmission line.;

- 1.Scope: National Grid will modify its distribution line by lowering the crossarm on our structure #4 a distance of three feet, and installing an intermediate pole
- 2. Estimated Cost for proposed scope:

Labor = \$4800

Transportation = \$500

Materials = \$1100

Company Overheads = \$1600

Total Estimated Cost = \$8000

V. TOTAL REVISED and UPDATED NATIONAL GRID PROJECT ESTIMATE

Edic Station Estimate = \$2,602,000

New Scotland Station Estimate = \$1,250,000

**Volney Station Estimate = \$86,000** 

Clay Station Estimate = \$167,000

Distribution Line Interference Modification = \$8,000

Total Revised and Updated Project Estimate = \$4,113,000