

**SPECIFICATIONS,  
CONTRACT DOCUMENTS  
AND  
DRAWINGS**

**FOR**

**D.G. HUNTER POWER PLANT UNITS 5-11**

**CITY OF ALEXANDRIA, LOUISIANA  
(OWNER)**

**ADDENDUM NO. 1**

**DATE ISSUED: THURSDAY, July 31, 2014, 4:00 P.M. Central Time**

This addendum shall be part of the Contract Documents as provided in BID PROPOSAL D.G. Hunter Power Plant Units 5-11.

This addendum is issued for the purpose of modifying and/or clarifying the Contract Documents and is construed as being as much a part of the original Contract Documents as though originally contained therein.

Acknowledge receipt of the addendum by inserting its number on the SECTION 00300 LOUISIANA UNIFORM PUBLIC WORK BID FORM. Failure to do so may subject the Bidder to disqualification.

**ZACHRY ENGINEERING CORPORATION  
3100 WILCREST DRIVE  
SUITE 240  
HOUSTON, TEXAS 77042-4216  
(713) 780-6001**

This ADDENDUM NO. 1 is being issued to define the Contractor's scope related to MISO/CLECO interface. The following ITEMS are to amend the Bidding Documents issued on July 17, 2014, by The City of Alexandria, Louisiana, for D.G. HUNTER POWER PLANT UNITS 5-11:

**ITEM #1**

Revise Division 01 3.4.H.1 to read as follows:

1. Redundant L+G MAXsys Elite (or Owner-approved equal) revenue meters, accumulators, and power supplies, one (1) set per GSU, will be provided by Contractor for measuring gross power generation through the GSU transformer for CLECO and MISO. Contractor will provide a metering panel for this equipment in the Controls Equipment Room. Contractor is responsible to install and wire all components. For further information refer to this Addendum No. 1.

**ITEM #2**

Revise Division 01 3.6.C.10.a. to read as follows:

- a. MISO and CLECO hardware equipment to be located as defined in the MISO / CLECO BLOCK DIAGRAM, **SKETCH-DCSC000101 Rev. A. located in Attachment 8.5.**

**ITEM #3**

Revise Division 01 3.6 to add paragraph F as follows:

F. MISO/CLECO INTERFACE DESCRIPTION:

1. Refer to MISO/CLECO BLOCK DIAGRAM, and City of Alexandria ICCP/XML and Meter SPECIFICATIONS datasheet attached in this Addendum No. 1.
2. The City of Alexandria will need to interface with MISO through Wärtsilä's provided engine control system, which is also to serve as the plant expansion control system, as it will include all balance of plant control. Wärtsilä is to comply with RTO-SPEC-005 ASM ICCP Data Exchange Specification in Attachment 8.5. Wärtsilä is providing two (2) Modbus TCP communication connections for MISO. All other equipment required for MISO communication shall be provided by Contractor unless otherwise stated. Installation, racks, conduit, and cable shall also be by Contractor.
3. MISO equipment and programming required shown in the MISO/CLECO BLOCK DIAGRAM in the MISO rack shall be by Contractor via a subvendor such as OSI (Open System International, Inc.) or equal as approved by Owner's Representative. The MISO rack(s) provided by Contractor shall be located in the existing main control room. Contractor shall coordinate with COA for exact equipment location.
4. MISO equipment and connections include the following:
  - a. Each Modbus TCP connection from Wärtsilä will connect to its own Modbus switch. Each Modbus switch will connect to each other for fail over redundancy.
  - b. Each Modbus switch will connect to its own ICCP/XML server. Each ICCP/XML server will include MySQL RDBMS.
  - c. Both ICCP/XML servers will connect to a KVM switch. The KVM switch is part of the maintenance/engineering workstation complete with monitor, keyboard, mouse, and KVM switch. Complete workstation shall be located in the MISO rack(s).
  - d. Each ICCP/XML server will connect via ICCP/XML to each other, its own firewall/switch, and each other's firewall/switch.
  - e. Each firewall/switch will connect via ICCP/XML to its own MISO router and each other's MISO router. The two (2) MISO routers will be provided by MISO and installation shall be by Contractor. Both MISO routers to be installed in the MISO rack(s).

- f. Both MISO routers will connect via ICCP/XML to COA's demarcation. Contractor shall be responsible to coordinate with COA to identify if an existing demarcation is available to use or if a new demarcation is necessary.
  - g. Each firewall/switch will also connect via XML to COA's existing LAN. Contractor shall be responsible to coordinate with COA to identify where the existing LAN is located and where the new connections are to be made.
  - h. COA's demarcation will connect via ICCP/XML to service provider demarcations 1 and 2. Service provider demarcations 1 and 2 are to be provided by the service provider and installation shall be by Contractor. Contractor to coordinate with COA, the location as well as all new connections in the service provider demarcations 1 and 2.
  - i. Network, including equipment and installation, after the service provider demarcations 1 and 2 are by MISO.
5. Wärtsilä will provide a third Modbus TCP communication connection to the RTAC SEL-3530, which shall be provided by Contractor and located in the new switchyard relay panel also provided by Contractor on the ground floor in the existing plant building. Contractor shall coordinate with COA for exact equipment location. The RTAC shall also have a Modbus TCP connection to the existing COA SCADA system. For further switchyard equipment information, refer to Section 3.7 – Switchyard Systems and Equipment.
6. The City of Alexandria will need to interface with existing CLECO RTU and COA's existing SCADA system directly from equipment. All equipment required for CLECO communication shall be provided by Contractor unless otherwise stated. Installation, panels, conduit, and cable shall also be by Contractor. Contractor shall be responsible to coordinate with COA to identify where the existing SCADA system is located, and where new terminations are to be made. Contractor shall be responsible to coordinate with COA to identify where the existing CLECO RTU is located. All new terminations to the existing CLECO RTU will be by CLECO. Contractor shall be responsible for conduits and cables pulled to the existing CLECO RTU, and for assisting COA in coordinating with CLECO for the terminations. Network, including equipment and installation, after the existing CLECO RTU are by CLECO.
7. Programming modifications to COA'S existing SCADA system will be by COA. Programming modifications to existing CLECO RTU will be by CLECO.
8. CLECO and SCADA equipment and connections include the following:
- a. New switchyard breaker status from the new switchyard relay panel provided by Contractor on the ground floor in the existing plant building shall be hardwired to the existing CLECO RTU and hardwired to the existing COA SCADA System. For further switchyard equipment information, refer to Section 3.7 – Switchyard Systems and Equipment.
  - b. There shall be four (4) GSU revenue meters provided by Contractor and installation shall be in a metering panel. The metering panel shall also be provided and installed by Contractor and be located in the new control equipment room. Contractor shall coordinate with COA for exact equipment location. Each revenue meter shall connect via DNP3 over fiber optic cable to the existing CLECO RTU, to the existing COA SCADA system, and to the Wärtsilä provided engine/plant control system. Programming the four revenue meters will be by CLECO.

9. If any additional equipment, included but not limited to UPS's, power supplies, and converters, is required for MISO and/or CLECO communication, it shall be provided by Contractor as well as the installation, conduit, and cable.
10. Prior to final design and purchase of equipment, Contractor shall submit proposed equipment specifications to Owner for approval.
11. Contractor shall be responsible for providing the final design for a functional system that meets MISO and CLECO requirements for COA's D.G Hunter Generating Station. Final design to include at a minimum: block diagram(s) and all interconnect wiring drawings.
12. Contractor shall be responsible for required testing per Midwest ISO Operating Reserve Provider (ORP) Guidebook, for all equipment, connections, communications, etc., in conjunction with the Wärtsilä representative on site, and for coordinating the testing with COA and CLECO.

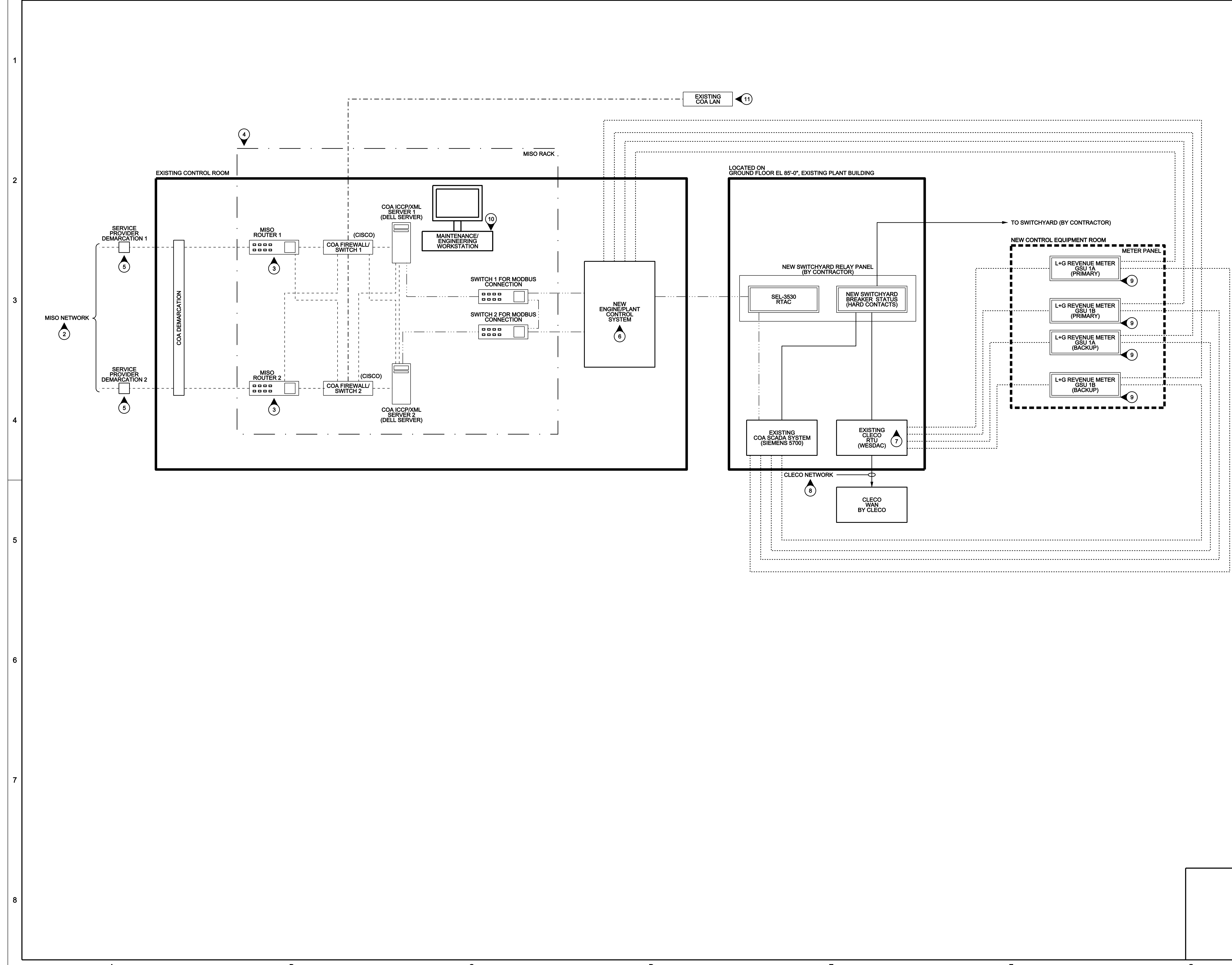
**ITEM #4** Add the attached file **MISO / CLECO BLOCK DIAGRAM, SKETCH-DCSC000101 Rev. A.** located in Attachment 8.5.

**ITEM #5** Add the attached specification titled **City of Alexandria ICCP/XML and Meter SPECIFICATIONS** located in Attachment 8.5.

**ITEM #6** Add the attached document titled **Midwest ISO Operating Reserve Provider (ORP) Guidebook** located in Attachment 8.5.

**ATTACHMENTS:**

1. **MISO / CLECO BLOCK DIAGRAM, SKETCH-DCSC000101 Rev. A.**
2. **City of Alexandria ICCP/XML and Meter SPECIFICATIONS**
3. **Midwest ISO Operating Reserve Provider (ORP) Guidebook**



- LEGEND**
- EXISTING LOCATION BOUNDARY (BUILDING, CONTROL ROOM, AREAS, ETC.)
  - - - NEW LOCATION BOUNDARY (CONTROL EQUIPMENT ROOM, ELECTRICAL ROOM, AREAS, ETC.)
  - ..... DNP3 OVER FIBER CABLE
  - ..... MODBUS TCP
  - HARDWARE
  - ICCP
  - LAN (XML)
- CLECO - CENTRAL LOUISIANA ELECTRIC COMPANY, INC  
 COA - CITY OF ALEXANDRIA  
 GSU - GENERATOR STEP UP TRANSFORMER  
 ICCP - INTER-CONTROL CENTER COMMUNICATIONS PROTOCOL  
 L+G - LANDIS + GYR  
 LAN - LOCAL AREA NETWORK  
 MISO - MIDWEST INDEPENDENT SYSTEM OPERATOR  
 RTAC - REAL TIME AUTOMATION CONTROLLER  
 RTU - REMOTE TERMINAL UNIT  
 SCADA - SUPERVISORY CONTROL AND DATA ACQUISITION  
 WAN - WIDE AREA NETWORK  
 XML - EXTENSIBLE MARKUP LANGUAGE

- NOTES**
1. ALL EQUIPMENT AND INSTALLATION BY CONTRACTOR UNLESS OTHERWISE NOTED.
  2. MISO NETWORK PROVIDED BY MISO AND INSTALLATION BY MISO.
  3. ROUTERS PROVIDED BY MISO AND INSTALLATION BY CONTRACTOR. MISO ROUTERS TO BE INSTALLED IN MISO RACK.
  4. EQUIPMENT INSTALLATION TO MEET MISO REQUIREMENTS IS PROVIDED BY CONTRACTOR OR CONTRACTORS SUB VENDOR OPEN SYSTEM INTERNATIONAL, INC (OSI) OR EQUAL. INSTALLATION, CABLE, RACK, WIRING IS ALSO BY CONTRACTOR.
  5. DEMARCATIONS PROVIDED BY SERVICE PROVIDER AND INSTALLATION BY CONTRACTOR.
  6. EQUIPMENT PROVIDED BY WARTSILA AND INSTALLATION BY CONTRACTOR.
  7. TERMINATION TO EXISTING CLECO RTU TO BE TERMINATED BY CLECO.
  8. CLECO NETWORK PROVIDED BY CLECO AND INSTALLATION BY CLECO.
  9. L + G MAXsys ELITE REVENUE METERS OR EQUAL, ACCUMULATORS, AND ACOPIAN POWER SUPPLIES OR EQUAL PROVIDED BY CONTRACTOR. PANEL, INSTALLATION, CABLE, WIRING IS ALSO BY CONTRACTOR.
  10. MAINTENANCE/ENGINEERING WORKSTATION INCLUDES MONITOR, KEYBOARD, AND KVM SWITCH. KVM SWITCH TO CONNECT TO BOTH ICCP/XML SERVERS.
  11. ANY ADDITIONAL EQUIPMENT REQUIRED FOR MISO AND/OR CLECO COMMUNICATION WILL BE PROVIDED AND INSTALLED BY CONTRACTOR.
  12. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND COORDINATION WITH OWNER (COA) FOR THE LOCATION OF NEW LAN LINE CONNECTION TO EXISTING LAN.
  13. CONTRACTOR SHALL PROVIDE THE FINAL DESIGN.

A		ISSUED FOR INFORMATION ONLY		DATE	DRWN	DSND	CHKD	CHKD
NO.		REVISION						

**ZACHRY**  
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 LOUISIANA BOARD OF PROFESSIONAL ENGINEERS CERTIFICATE OF REGISTRATION #61282  
 AMARILLO, TX CHARLOTTE, NC DENVER, CO HOUSTON, TX MINNEAPOLIS, MN OMAHA, NE TYLER, TX  
**D. G. HUNTER GENERATING STATION**  
 DISTRIBUTED CONTROL SYSTEM  
 MISO / CLECO  
 BLOCK DIAGRAM

DRAWN	DESIGNED	CHECKED	CHECKED
DISCIPLINE MANAGER	DRAWING NUMBER	SHEET	REV
PROJECT MANAGER	SKETCH-DCSC000101	01	A



## City of Alexandria ICCP/XML and Meter SPECIFICATIONS

Item(s)	Description
<b>Hardware/Software</b>	
	Redundant Software and Licensing (OpenICCP) for exchanging up to 100 total points between the plant and MISO
	OpenView™ GUI for one (1) single-head workstation, OpenFEP license (includes Modbus protocol), up to two (2) Modbus IP communication channels, and ICCP communications with two (2) ICCP links, MISO XML Market communication.
<b>Third Party Hardware and Software</b>	
2	Dell PowerEdge R720 Windows servers
2	24-port Cisco 3750X LAN switches
2	Cisco ASA 5515 Firewalls
1	Server Cabinet, KVM and KVM switch
	Associated cabling for equipment supplied by OSI
1	Dell Precision T3610 Maintenance/Engineering workstation (1 24" monitor)
2	MySQL RDBMS servers
<b>Services and Support</b>	
<i>Engineering and Project Implementation from OSI (MISO Vendor)</i>	
	OSI will provide up to two (2) weeks of customary and reasonable engineering support for this project.
	OSI will construct the initial ICCP import/export lists to MISO and up to two (2) Modbus RTU configurations, based on point list provided by COA/CONTRACTOR, for up to 100 total data points.
	OSI will travel to COA to install and commission system. OSI assumes all communication links will be established before the site visit. OSI will provide up to 5 days of onsite testing with MISO.
	Silver monarch™ Support (Year 1) (8X5 support, no software updates)
<b>OSI Travel Accommodations</b>	
	Includes airfare, hotel, meals and car rental
<b>Optional Integration and Support Services</b>	
	Additional Display Building Services (per hour, minimum 2 hours) – work performed at OSI.
	Additional Database Building Services (per hour, minimum 2 hours) – work performed at OSI.
	Report Building Services (per hour, minimum 2 hours) – work performed at OSI.
	Additional Remote Assistance (per hour, minimum 2 hours)
	Additional Onsite Assistance (per day)
	One (1) Person per week Training (OSI University Fast Track Training) (5 credits) @ OSI
<b>METER SPECIFICATIONS</b>	
	The project will use four Landis+Gyr MAXsys Elite meters consisting of a primary and backup meter for each of the two generators. These Elite meters collect data at a high enough rate to capture waveforms and power quality information.
	Each meter will have three DNP 3.0 level 2 RS232 connections: one to City of Alexandria's RTU, one to CLECO's RTU and one to a Plant computer (that will send data to MISO via an ICCP server).

# Midwest ISO Operating Reserve Provider (ORP) Guidebook

Version 1.3

Last Updated: November 17, 2009

## Revision History

Revision	Date	Description
1.0	10/27/2009	Initial Draft
1.1	10/29/2009	Added CIP requirements
1.2	11/5/2009	Incorporated legal review comments
1.3	11/17/2009	Legal review and additions



## Introduction

The following document defines the infrastructure requirements necessary to participate as an Operating Reserve Provider (ORP) in the Midwest ISO Ancillary Service Market (the “Plan”). The Plan and any agreements between the Midwest ISO and an eligible member related to the Plan are governed by and interpreted in accordance with the laws of the State of Indiana, without giving effect to conflict of law rules.

An ORP must be a provider of Energy and Operating Reserves (“EOR”) that has physical control of assets and be able to receive ICCP instructions and be able to provide regulation and/or contingency reserve products as defined in the EOR Business Rules and tariff. The Midwest ISO will extend the Wide Area Network to the provider’s Operations Center. More specifically, the Midwest ISO will directly pay the cost of installing and maintaining the communications data link needed to directly receive ICCP data from the Midwest ISO subject to the ORP making their resources available to the Midwest ISO Energy and Operating Reserves Market. ORPs that fail to make a resource available shall be required to refund to the Midwest ISO all communication infrastructure expenditures incurred by the Midwest ISO associated with the ORP. This document defines the minimum set of activities required by the ORP for the Midwest ISO to continue to cover the on-going maintenance costs associated with this infrastructure.

Additional requirements and conditions are set forth in the remainder of this document.

## Guiding Principles

The purpose of the Midwest ISO Operating Reserve Provider Guidebook is to assure that the necessary infrastructure between the Midwest ISO and the ORPs to support operations of the Midwest ISO Energy and Operating Reserves Market. Each ORP must have physical control of at least one resource eligible to provide and is capable of providing regulation and/or contingency reserves and must participate in the Energy and Operating Reserves Market per the current Midwest ISO tariff.

- As part of the Energy and Operating Reserves Market, the Midwest ISO is offering to extend the Midwest ISO Wide Area Network (WAN) to the operations center of entities capable of providing Energy and Operating Reserves (Contingency Reserves and Regulation Reserves). These entities must be able to receive ICCP data directly from the Midwest ISO, allowing them to provide Operating Reserves. By allowing these entities to participate directly in the Energy and Operating Reserves Markets "EOR", the number of suppliers increases, which provides benefits to the overall market. Subject to the ORPs continued participation on the EOR, the Midwest ISO will cover the cost of the installation of and annual maintenance for this infrastructure as per the terms of this agreement. The Midwest ISO also recognizes the requirement to manage the overall costs of operating the Energy and Operating Reserves Market. While the Midwest ISO is pleased to extend the Midwest ISO WAN to ORPs, the objective of this program is for the overall market to benefit from the increase in available resources being offered into the EOR. . Entities that do not complete testing as defined in this document will be required to pay for on-going maintenance of the circuit until testing is completed. In addition, the entity must continue to offer Operating Reserves into the EOR; entities that fail to meet the minimum requirements defined in this document will be required to pay for on-going maintenance of the circuit and to reimburse the Midwest ISO for the cost of installing the circuit.

Operating Reserve Providers (“ORP”) are defined as providers of Energy and Operating Reserves that have physical control of at least one asset able to send/receive ICCP instructions and are able to provide regulation and reserve products as defined in the Energy and Operating Reserves Business Rules and tariff.

### Approach

- Midwest ISO will extend the existing Wide Area Network from the Midwest ISO to the Operations Center of the ORP. The Midwest ISO will be responsible for developing and managing the transfer of information between the Midwest ISO and the Operations Center of the ORP.
- WAN hardware configuration will be determined once the Operating Reserve Commitment form is received
- One of the two network configurations in Appendix A will be used. In either configuration, the point of demarcation is the router at the participants control location. Subject to the continued participation of the affected resources in the EOR the Midwest ISO pays for these routers as well as the communication circuits to them. The ORP is responsible for purchasing and maintaining all equipment from the router to their systems. The ORP shall supply and maintain appropriate security perimeter that meets or exceeds such standards as may be required by the Midwest ISO.
- The ORP agrees to comply with any and all NERC Standards regarding security of the Midwest ISO WAN in the event NERC or the Midwest ISO determines any of the NERC standards apply to the Midwest ISO WAN and/or any associated hardware.
- The right side of the two network configurations in Appendix A represent a recommended high-level approach from the Midwest ISO router located at the ORP site to the other systems at the ORP.
- The ORP submits/receives operational data to/from the Midwest ISO using ICCP nodes located at their site (represented as within the ‘LAN’ on the two network configurations in Appendix A)
- To support the Appendix A configurations, the ORP must supply secure space and conditioned power (UPS) to support the Midwest ISO managed router at the ORP’s site.
- The ORP is responsible for developing and implementing the required data exchange between their existing systems and the Midwest ISO.
- Midwest ISO directly pays for the costs of the Wide Area Network expansion up to the Midwest ISO managed router at the ORP’s site subject to the ORPs initial and on-going participation in the EOR.
- The ORP must have and maintain the capability to receive XML data from the Midwest ISO. The unit start and stop times are sent via XML only so the ORP will need to receive these. As a backup in the event of an ICCP outage, the ORP must be able to receive the backup XML dispatch target notifications. The use of the backup XML dispatch target notifications should only be at the request of the Midwest ISO Shift Manager. The ORP is responsible for all costs associated with the design, development, installation and testing of this communications network.
- Upon confirmation that an energy and operating reserve provider (ORP) plans to participate in the EOR, the Midwest ISO will order the telecommunication circuit(s) to the ORP’s operations center. The installation and monthly cost is paid by the Midwest ISO. The ORP is expected to complete a point to point data exchange within 30 days of the circuit being installed. The ORP can not participate in the Midwest ISO EOR until this testing is completed..

- If the ORP doesn't complete their testing within 30 days of the circuit being installed, the Midwest ISO reserves the right to bill the ORP for all costs incurred relating to the ORP WAN connection until the point to point testing is completed.
- 
- If the ORP decides to withdraw as an ORP within 12 months of submitting the Operating Reserve Commitment form, the Midwest ISO reserves the right to bill the ORP for the WAN installation costs as well as monthly ongoing costs for a total not to exceed \$36,000.
- The Midwest ISO may, at its sole discretion, extend the dates described above, if an entity does not meet the criteria but demonstrates a good faith effort to complete the required test.
- In addition, the Midwest ISO performs a yearly evaluation of wide area network usage. Should it be determined that an ORP is not providing ancillary services exceeding the annual cost of the communications circuit to the ASM, Midwest ISO reserves the right to discontinue payment of the ongoing charges associated with the Midwest ISO WAN. These charges would then become the responsibility of the ORP for the remainder of the telecommunications contract.
- If the entity does not meet the minimum requirement above, but demonstrates a good faith effort to offer Ancillary Services into the Midwest ISO Market, then the Midwest ISO may, at its sole discretion, decide to continue to cover the cost of the circuit.
- Once the ORP completes all initial testing, the Midwest ISO will continue to directly pay for the monthly maintenance for this circuit for as long as the ORP continues to meet the definition of an ORP, or until one of the following occurs:
  - The ORP elects to have the service removed.
  - It is determined the ORP is not actively participating or attempting to participate in the EOR (as defined above)
  - Physical Control of the assets is transferred to another ORP or BA/LBA
- The ORP does have the opportunity to elect to have this service removed during windows communicated by the Midwest ISO. The Midwest ISO will require 180 days notice to have this service removed.
- The ORP has the obligation to communicate a change in location for the circuit. The Midwest ISO determines the cost of moving a circuit to an ORP on a case-by-case basis.
- Except as explicitly provided herein, The Midwest ISO will not reimburse the ORP for any expenses related to any other activities related to this program. This includes, but is not limited to, the following:
  - Control systems modifications
  - ICCP node development
  - Advanced analytics to support market strategies
  - Labor associated with the installation, testing, or verification of the infrastructure installed as part of this program
  - XML development

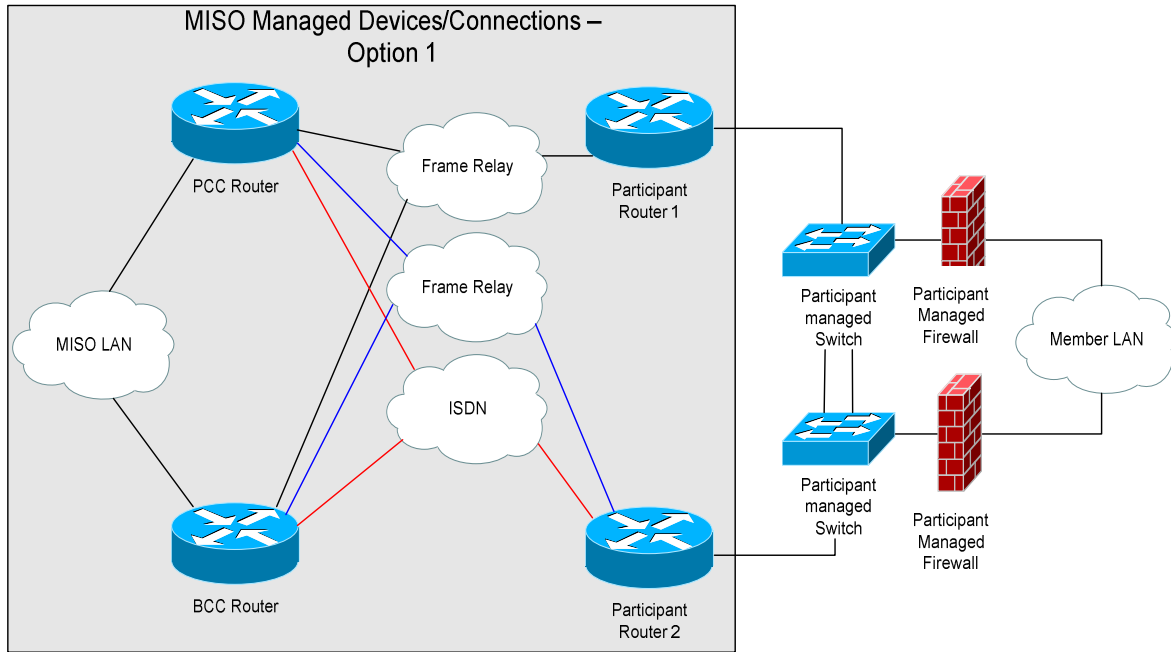
Data transfer requirements for Reimbursement Path A eligible companies is defined in the real time section of the ICCP and XML specifications.

# Appendix A

Midwest ISO WAN configurations options

demark

| ←----- MISO managed network -----> | ←----- Participant managed -----> |



demark

| ←----- MISO managed network -----> | ←----- Participant managed -----> |

