Wide Area Network Services

Request for Information

Western Interconnection Synchrophasor Program (WISP)

Date: March 24, 2010

Contents

1 Introduction

1.1 PURPOSE

The Western Electricity Coordinating Council (WECC) is requesting information on wide area network (WAN) services and solutions to support the Western Interconnection Synchrophasor Program (WISP).

1.2 CURRENT SITUATION

WISP will deploy a large-scale synchrophasor measurement system in the Western Interconnection. This program involves:

- Deploying phasor measurement units (PMU) and phasor data concentrators (PDC) throughout the Western Interconnection;
- Implementing a new, wide-area telecommunications network for synchrophasor data transmission across the Western Interconnection; and
- Engineering and deploying new software applications to improve situational awareness, systemwide modeling, performance analysis, and wide-area monitoring and controls for the Western Interconnection.

Synchrophasor data and supporting technologies will be used by WECC and participating utilities to identify and analyze system vulnerabilities and disturbances as they are developing on the bulk electric system in the Western Interconnection. This “early warning” will enable WECC to take timely actions to avoid widespread system blackouts. It also will be used to ensure the accuracy of models used to simulate the power system in planning and operational studies. In some instances, it will be used to deploy automatic corrective actions to stabilize the power system.

1.3 WECC’S BACKGROUND

WECC is the Regional Entity responsible for coordinating and promoting bulk electric system reliability in the Western Interconnection. WECC assures open and non-discriminatory transmission access among its members, and provides a forum for resolving transmission access disputes, and provides an environment for coordinating the operating and planning activities of its members as set forth in the WECC Bylaws.

WECC's service territory extends from Canada to Mexico. It includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 Western states between.

WECC is geographically the largest and most diverse of the eight Regional Entities that have Delegation Agreements with the North American Electric Reliability Corporation (NERC). Due to the vastness and diverse characteristics of the region, WECC and its members face unique challenges in coordinating the day-to-day interconnected system operation and the long-range planning needed to provide reliable electric service across nearly 1.8 million square miles.

WECC is the successor to the Western Systems Coordinating Council (WSCC), which was formed in 1967 by 40 electric power systems. WECC was formed on April 18, 2002 by the merger of the WSCC, Southwest Regional Transmission Association, and Western Regional Transmission Association.

1.4 WISP WAN OBJECTIVES

WECC intends to engage one or more vendor partners that can deliver WAN services and solutions to meet the needs of WISP. The vendor(s) should also be able to provide planning, implementation and support services. The scope of this RFI is limited to WAN technologies and services.

1.5 SYNCHROPHASOR SYSTEM OVERVIEW

The following information provides a high-level description of the synchrophasor technology architecture for WISP:

PMUs will be deployed at participating utility substations across the Western Interconnection. The participating utilities will deploy PDCs within their control centers to aggregate and concentrate synchronized phasor data collected from the PMUs at the substations. Synchronized phasor data will be collected at varying speeds (30 and 60 samples per second are expected, with upward scalability to 120 samples per second expected in the future).

Redundant PDCs will be deployed at each WECC Reliability Office (Loveland, Colorado and Vancouver, Washington) and will be configured to collect streaming data from PDCs at each of the participating utilities. The data from the inbound PDCs will be collected in both a real-time database and a post-event analysis data historian. Real-time situational awareness applications will be deployed to deliver enhanced visualization and understanding of the condition of the Western Interconnection.

A core wide-area network will be deployed to interconnect participating utilities and WECC, as well as to various national, federal and academic organizations. WISP's initial scope will be to support at least 20 remote sites (dual connected) and two WECC data center locations in Vancouver, Washington, and Loveland, Colorado. Streaming data from participating utility PDCs will be transmitted to each WECC data center simultaneously. Both data centers will operate in a production mode. In the event of a connectivity failure with the primary data center (Vancouver), the secondary data center (Loveland) will perform all operations. WECC expects to scale the WAN to over 35 dual connected sites in the WECC region and to several others across the country over the next five to seven years.

High availability (greater than 99.99 percent) is a key requirement of the system. The network will be designed and implemented so that if there is a failure of one path from a remote site to a WECC data center, the redundant path will continue operating with no loss of service quality or performance.

1.6 DOCUMENTATION

Any documentation submitted as a response to this RFI shall become WECC property and will not be returned.

1.7 COMMITMENT

The issuance of this RFI by WECC in no way represents a commitment, or an intention to commit, and WECC will not reimburse responders for expenses that occur as a result of responding to this RFI.

1.8 SCHEDULE OF EVENTS

The following schedule provides approximate dates associated with this RFI. WECC reserves the right to change any of the dates listed. Changes in the schedule of events will be provided to participants in the form of an RFI addendum, and will be communicated directly through e-mail and the WECC Synchrophasor Web site http://www.wecc.biz/awareness/Pages/WISP.aspx

- Release RFI March 24, 2010
- RFI Responses Due April 9, 2010

1.9 WECC CONTACT

The following WECC e-mail box shall be used to submit questions related to this RFI: WISP@wecc.biz. The subject line must contain "WECC WISP WAN RFI" (without the quotes).

1.10 INSTRUCTIONS AND RFI RESPONSE FORMAT

The following sections detail the required response format for this RFI.

1.10.1 INSTRUCTIONS

Acceptable response formats include MS Word (versions 2007 or '97-2003') and Adobe Acrobat PDF files sent via e-mail to WECC at: WISP@wecc.biz.

Any graphics included in the response should be able to be viewed by MS Word or Adobe Acrobat.

All answers and respondent-provided information should follow the RFI format.

1.10.2 COVER LETTER

The cover letter shall be in the form of a standard business letter and shall be signed by an individual authorized to legally represent the vendor. It shall include the following:

- A statement specifying whether or not proprietary data has been included in the RFI response.
- The availability of product and support services.

1.10.3 IDENTIFICATION

State the name and address of your organization and the nature of the company organization (individual, partnership or corporation, private or public, profit or nonprofit). Include the name and telephone number of a person(s) in your organization responsible for the RFI response. If this is a multipartner response, include this information for each organization that is part of the multipartner team.

1.11 ADDITIONAL INFORMATION

Provide a list of at least three (3) relevant and recent customers that WECC may contact. Please use examples that closely match WECC's size and business requirements.

The reference information should include:

- Client business name and address;
- Client contact name and telephone number;
- Description of the scope of WAN implementation and supporting company descriptions.

Please also provide:

- A description of your company's legal structure (corporation, partnership, sole proprietorship) and ownership;
- A copy of your company's mission statement;
- A description of how long your company has been in business providing similar products and whether your company is publicly traded;
- A copy of any information that would support the volume of business, credit worthiness, and financial stability of your firm. This should include information such as recent financial annual reports, current balance sheets, and profit and loss statements.

1.12 STAFF DESCRIPTION

Please describe your company's staffing:

1) Functional background
   - Number of employees, position, responsibilities, and qualifications.
2) Technical background
   - Number of employees, position, responsibilities, and qualifications.
3) Implementation support:
   - Number of employees, position, responsibilities, and qualifications.

2 RFI RESPONSE SECTION

Please answer the questions in the matrix below. In the "Comply?" column, please enter "Y" for yes or "N" for no. You may provide further explanation for any "Yes" answer. For any "No" answer, explain how you plan to comply or if you do not intend to comply. You may provide as much additional information as appropriate as attachments.

#	WAN Questions	Comply? (Y/N)
1.	Can you provide IP-based wireline services supporting streaming and mesh traffic, with remote end point traffic rates of up to 1.5Mbps and with Data Center access lines of DS3 or better?	
2.	Can you provide IP-based wireless services supporting streaming and mesh traffic rates of up to 1.5 Mbps at remote endpoints located through the WECC region, and Data Center access lines of DS3 or better?	
3.	Can you provide WAN engineering and implementation services?	
4.	Can you provide end-to-end network availability of 99.999%?	
5.	Can you provide 24x7 on-site maintenance services for routers, switches and network management systems?	
6.	Can you provide project management services for network design and implementation?	
7.	Can you provide advanced-level technical support services for routers and switches beyond technician-level services?	
8.	Can you provide 24x7 network management services?	
9.	Can you manage and execute telecommunications moves, additions and changes at remote customer sites?	
10.	Can you perform telecommunications incident management through network management and trouble ticket systems?	
11.	Can you provide a Web portal for access to real-time and historical network information?	
12.	Can you provide an online, printable procedures manual?	
13.	Can you provide a repair mean time of 4 hours or less?	
14.	Can you achieve end-to-end latency (Utility edge router to WECC Data Center) of approximately 30ms, packet delivery of 99.995% and jitter of 10ms or less?	
15.	Can you implement class of service (CoS) options?	
16.	Can you provide diverse routing (from long-haul, to local access, to building entry)?	
17.	Can you describe the diversity and resiliency of your WAN environment, including how the network will respond in the event of a catastrophic failure of your core WAN infrastructure?	

#	WAN Questions	Comply? (Y/N)
18.	Can you support IPV6?	
19.	Can you support a customer transition from IPV4 to IPV6?	
20.	Can you provide VPN services?	
21.	Can you block the visibility of network core assets?	
22.	Can you perform routing authentication?	
23.	Can you guard against denial of service attacks?	
24.	Can you provide VPN services over wireless or wireline networks at data rates greater than 1.5Mbps?	
25.	Can you provide managed services for edge routers and security appliances?	
26.	Can you commit to contractually binding SLAs?	
27.	Can you provide the network monitoring and tracking systems needed to monitor SLAs?	
28.	Do you own your core network assets?	
29.	Can you provide coverage for the WECC region?	
30.	Can you perform major network upgrades without impacting services to your customers?	