



AGENDA REPORT

Date: October 10, 2017

To: City Manager for Council Action

From: Chief Electric Utility Officer

Subject: Approval of a Software Maintenance Agreement with ABB Inc. to Provide Maintenance and Support for Silicon Valley Power's Electric Supervisory Control and Data Acquisition (SCADA) System

EXECUTIVE SUMMARY

The City of Santa Clara's Electric Utility, Silicon Valley Power (SVP), operates a Supervisory Control and Data Acquisition (SCADA) system in order to monitor and control the City's power grid. The current SCADA system is supplied by ABB and operates on proprietary ABB software. The ABB system went online in 1997 and was selected through a competitive process. The system has evolved and been updated since its initial operation. Under this software maintenance agreement, ABB will provide maintenance and support services for the SCADA system as required to maintain operational reliability and cyber security for this critical system. ABB has provided excellent service and response time. Staff would like to enter into a fixed price Software Maintenance Agreement with ABB Inc., to provide maintenance support and services for the SCADA system.

Negotiations for this agreement have been ongoing for several months focusing on resolving insurance and legal terms and conditions. SVP and ABB have not had an agreement since September 1, 2017. The new agreement will go into effect after Council approval and will be for a three-year term. A copy of the ABB Inc., Software Maintenance Agreement can be viewed on the City's website and is available in the City Clerk's Office for review during normal business hours.

ADVANTAGES AND DISADVANTAGES OF ISSUE

By entering into this Agreement, SVP will be assured of timely and reliable maintenance services from ABB for a three-year period. If the Agreement is not entered into, SVP risks reliability of its SCADA system due to inability to procure timely critical system support services on a time and material basis.

ECONOMIC/FISCAL IMPACT

This Agreement for Services with ABB, Inc. shall not exceed \$476,364. The first year of this three-year agreement is \$154,439.93 and sufficient funds are available in the Electric Department Contractual Services/Not Classified Account 091-1362-87870-[F]55600.


RECOMMENDATION

That the Council approve, and authorize the City Manager to execute, the Software Maintenance Agreement with ABB Inc., in an amount not to exceed \$154,439.93 for the first year of the agreement, and a three year total not to exceed \$476,364, to provide continued maintenance and support for Silicon Valley Power's Electric Supervisory Control and Data Acquisition (SCADA) System.



John C. Roukema
Chief Electric Utility Officer

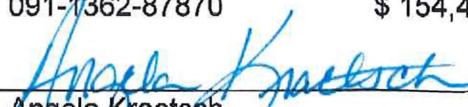
APPROVED:



Deanna J. Santana
City Manager

Certified as to Availability of Funds:

091-1362-87870 \$ 154,439.93



Angela Kraetsch
Acting Director of Finance

Documents Related to this Report:

- 1) *Software Maintenance Agreement with ABB Inc.*

City of Santa Clara Software Maintenance Agreement

This Software Maintenance Agreement (this "Agreement") is effective as of **September 1, 2017** ("Effective Date") by and between ABB Inc., located at 1601 Industrial Blvd., Sugar Land, Texas 77478 ("Licensor") and the City of Santa Clara, California, a chartered California municipal corporation with its primary business address at 1500 Warburton Avenue, Santa Clara, California 95050 ("Licensee") pursuant to Licensee's Software License Agreement Contract number 2324 with an Effective Date of **August 15, 1995** (the "License Agreement") for the delivery of ABB's software, as modified herein.

Licensor will provide to Licensee software maintenance services ("Maintenance Services") for the Licensed Software (the "Program") developed and supplied by Licensor as defined herein. The terms and conditions of the License Agreement shall govern Licensee's use of the Program, fixes, updates, releases, documentation and other Confidential Information delivered under this Agreement.

Licensor Sales Executive

Name: Leo Hagood

Phone: 404-630-4846

Cell:

E-mail: leo.hagood@us.abb.com

Licensor Project Manager

Name: Colby Tow

Phone: 1-281-274-5125

Cell: 1-713-501-0830

E-mail: colby.tow@us.abb.com

Licensee Project Manager

Name: Jeff Ipsaro

Phone: 1-408- 615-5604

Cell: 1-

E-mail: jipsaro@SantaClaraca.gov

Licensee "Bill to" Contact/Dept:

Name: City of Santa Clara dba Silicon Valley Power

Phone: 1-

Cell: 1-

E-mail: SVP_AP@SantaClaraca.gov

PO #:

1. This Agreement shall serve as the exclusive definition of the Maintenance Services for the Software.
2. The term of this Agreement shall commence upon the Effective Date set forth above and shall continue for three (3) years.
3. Licensee shall pay Licensor the annual, nonrefundable Maintenance Service Fee in the amount(s) in the table below.

Year	EMS SMA.	Oracle	SISCO	HP	Totals
9/1/2017	\$143,492.59	\$7,412.00	\$3,535.33	\$0.00	\$154,439.93
9/1/2018	\$147,797.37	\$7,412.00	\$3,535.33	\$0.00	\$158,744.70
9/1/2019	\$152,231.29	\$7,412.00	\$3,535.33	\$0.00	\$163,178.62
	\$443,522.00	\$22,236.00	\$10,606.00	\$0.00	\$476,364.00

All fees presented in this Renewal are expressed in U.S. dollars. The first invoice shall be invoiced on September 1, 2017 and the subsequent annual fee Renewal Term(s) shall be invoiced on the 1st of August of each following year(s) during the term of this Agreement, net forty-five (45) days upon receipt of invoice by Licensee. Said Maintenance Service Fee does not include any federal, state, or local property; license; privilege; sales; use; excise; gross receipts; value-added; or other similar taxes that may be applicable to, measured by, or imposed upon, or with respect to, this Agreement, the Program, its license, its value or its use, or any performed services, and Licensee agrees to pay or reimburse any such taxes that Licensor, its contractors, or suppliers are required to pay.

Maintenance Service Renewal Term(s) Fees shall be equal to the previous year's Maintenance Service Fee plus the United States Consumer Price Index for all Urban Consumers for All Items, not seasonally adjusted, for the most recent twelve-month period ending prior to the maintenance term expiration dates. Such increase in the Maintenance Service Fee shall be limited to ten percent (10%) per year.

Licensee may reinstate lapsed Maintenance Services for the Software upon payment for all Maintenance Service Fees for the period during which Maintenance Services lapsed and all costs invoiced by Licensor, using the Network Manager published rate in effect at the time, for updating the Licensee's Software to the then-current version.

4. If payment is not made in accordance with this Agreement, a service fee of one and one-half (1.5%) percent or the highest legal rate permitted on the unpaid balance for each full or partial month of delay shall be charged. This service charge shall not preclude ABB's rights, including that of immediate payment. All Maintenance Services Fees and other amounts due under this Agreement are in U.S. dollars.
5. Maintenance Services shall consist of services as defined in Appendix A. Licensor will provide up to fifty (50) hours of Services during the Initial Term and each Renewal Term. Maintenance Services not utilized during the Initial Term or Renewal Term, as applicable, will lapse and will not be available outside of that term. Any additional services or services not included in Appendix A shall be invoiced using the Network Manager published rate at the current time.
6. During the term of this Agreement, Licensee shall:
 - a. Ensure that only personnel properly trained in the operation and use of the Software and its associated equipment call Licensor for direct phone support and that such personnel have sufficient access and computer time when using such service in order to implement the corrections suggested by Licensor;
 - b. Install and maintain the operating software and any third-party software to be provided by Licensee;

- c. Ensure the proper Software environment is maintained and that Licensee's personnel who have access to the Software are properly trained in the operation and usage of the Software and the associated equipment; and
 - c. Provide Licensor an adequate high speed VPN (Virtual Private Network) network connection to Licensee's System so that Licensor can provide adequate remote support;
 - d. Provide Licensor timely access to supporting data, to include database extracts if required, and
- 7. Licensee shall be solely responsible to ensure that all of its files and data are adequately duplicated or documented, and Licensor shall in no way be responsible for Licensee's failure to do so, nor for the costs or expenses of reconstructing data which is lost, destroyed or otherwise damaged or rendered useless during the course of or as the result of the performance of any services under this Agreement.
- 8. Each party shall have the right to terminate this Agreement in the event that the other party breaches any material provision of this Agreement and such breach is not cured within thirty (30) days after notification thereof.
- 9. The maximum liability of Licensor for any direct damages sustained by the Licensee under this Agreement shall in no circumstance exceed the amount of the annual Maintenance Service Fee payable by the Licensee to Licensor. The Licensee and Licensor shall in no event be liable one to the other for loss of revenue, profit, anticipated profit or indirect, incidental, special or consequential damages, including but not limited to, any losses to Licensee resulting from lost computer time or the destruction or damage of records, or any claims or demands made against the Licensee by a third party,
- 10. This Agreement shall be governed by the laws of the State of New York, but excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods and excluding New York law with respect to conflicts of law. Licensee agrees that all causes of action against Licensor under this Agreement shall be brought in the State Courts of the State of New York, or the U.S. District Court, for the Southern District of New York. If any provision hereof, partly or completely, shall be held invalid or unenforceable, such invalidity or unenforceability shall not affect any other provision or portion hereof and these, terms shall be construed as if such invalid or unenforceable provision or portion thereof had never existed.
- 11. Neither Licensor nor Licensee shall be liable for any failure to perform or for delay in performance (other than payment obligations) due to fire, flood, strike or labor difficulty, act of God, government authority or the other party, riot, embargo, fuel or energy shortage, wrecks or delay in transportation, inability to obtain necessary labor, materials, or services, or any other cause beyond such party's reasonable control. If there is a performance delay due to any such cause, the date of delivery or time for completion shall be extended by a time period reasonably necessary to overcome the delay's effect.
- 12. Any notice required or permitted hereunder shall be in writing and shall be deemed to have been delivered upon delivery by commercial delivery service or upon delivery by certified mail to a party's address as set forth above. A party may change its address for receipt of notice by providing written notice to the other party.
- 13. This Agreement, including the Appendices attached hereto, and the License Agreement contain the entire understanding of the parties with respect to the matters contained herein. This Agreement may not be modified except by writing, executed by authorized representatives of Licensor and Licensee, if any provision hereof is or becomes, at any time or for any reason, unenforceable or invalid, no other provision hereof shall be affected thereby, the remaining provisions shall continue with the same effect as if such unenforceable or invalid provision shall not have been inserted herein. The headings and captions contained herein shall not be considered to be a part hereof for purposes of interpretation or application hereof, but are for convenience only. Either party's failure to exercise any right under this

Agreement shall not constitute a waiver of any other terms or conditions of this Agreement with respect to any other or subsequent breach, nor a waiver by such party of its right at any time thereafter to require exact and strict compliance with the terms hereof.


14. If Licensee issues a purchase order or other document that purports to define Maintenance Services other than as set forth in this Agreement, it is agreed that the terms and conditions of any such purchase order shall have no application or effect, and that the provisions of this Agreement shall continue to control matters related to the provision of Maintenance Services.
15. As a part of Licensor's ISO 9001:2000 quality program requirements regarding customer supplied data, the Licensee acknowledges and accepts that there are no special handling requirements for Licensee's data supplied to Licensor as part of the Agreement. There shall be no tracking of changes that Licensor may make to the data as Licensor utilizes data for support services to Licensee. Licensee understands and accepts that there are no requirements by the Licensor to return any data to Licensee and Licensor can delete data whenever Licensor deems it is no longer required. While the data is in Licensor's possession and when it is disposed, Licensor shall protect the confidentiality of the data as if it were Licensor's confidential information. This agreement summarizes all special handling requirements of Licensee's data.

16. The provisions of Sections 3,4,7,9,10,11,12,13,14 and 15 shall survive the expiration or termination of this Agreement for any reason.

ALL SOFTWARE FIXES, UPDATES, RELEASES, DOCUMENTATION AND OTHER MATERIALS OR INFORMATION DELIVERED UNDER THIS AGREEMENT ARE DELIVERED AS-IS, AND LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES UNDER THIS AGREEMENT WHATSOEVER, WHETHER STATUTORY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

IN COMPLETE AGREEMENT

(LICENSOR)


By: 
Printed Name: David W. Aldrup
SVP, Network Control
Title: _____
Company: ABB
Date: 9/18/2017




Jarod Zhang
Regional Controller, NC

09-19-2017

(LICENSEE)

By: 
Printed Name: DEANNA J. SANTANA
Title: City Manager
Company: City of Santa Clara
Date: 10/12/17

APPROVED AS TO FORM:
SANTA CLARA CITY ATTORNEY'S OFFICE



ATTEST:


City Clerk

APPENDIX A
MAINTENANCE SERVICES

1. Software Support

Features	Benefits
Release Rights	Rights to periodic Baseline Release notes and software for those software applications the customer has licensed.
Software Support via Licensee Support Center	<p>SPIDER Support: Is included. Hardware (2 HP Alpha redundant SPIDER servers, 1 Digital Alpha IS500 server, 1 HP Alpha Development server, 4 MMI Consoles, 4 RCS310 Communication Front-End Units, and 2 PCU400 Communication Front-End Units) Software (SPIDER SCADA EMS Systems, version 11 as delivered by Licensor, or as subsequently modified by Licensor). System located in Santa Clara, CA Note: 1. Support for the RCS310 front-end (RTG) is limited to database, configuration and troubleshooting, and does not include software updates. 2. PCU software upgrades are limited to releases that are compatible with SVP's current Network Manager release. 3. Compaq UNIX Version: 5.0 with version 11.4. Required Third Party Software (Including other required Operating Systems): As required by Licensor. 5. The SPIDER system Third party hardware and software support services are not included in this Agreement.</p> <p>Network Manager support: Is included Hardware (For the supported Client and Server Operating System and the required third party software versions please see the Network Manager SCADA Upgrade Project Agreement for Services date June 25, 2013) Software (SCADA EMS Systems, version NM 6.4 as delivered by Licensor, or as subsequently modified by Licensor. This includes the Energy Management System (EMS) tools as dated May 10, 2016 (Account 591-1362-80100-2415-[A]000424N39700)(EBIX No. 200001563)(Agreement for the Performance of Set-vices/ABB Inc. Rev. 06/28/12; Typed 4/7/16). System located in Santa Clara, CA. Note: 1. The Network Manager system Third party hardware support services are not included in this Agreement.</p> <p>HP 2. The Network Manager system Third party software support services is included in this Agreement.</p> <p>Oracle 5 - OracleOracle Database Standard Edition One Licenses</p> <p>SISCO 2 - SISCO MMS-SECURE-142-095-EXE licenses 1 - SISCO MMS-SECURE-142-095-HB license Support up to the contracted number of hours (50) per year via telephone. Additional Support Hours is offered at a rate of \$37,800 for 100 man-hour blocks.</p> <p>All actual and verifiable travel, shipping, and subsistence expenses plus a processing fee of 15% of actual charges.</p> <p>Available during normal Houston office hours (0800 - 1600, CST), not including holidays. Licensee shall have the ability to contact Licensor twenty-four (24) hours a day, seven (7) days a week to request support for mission critical issues. The Global Customer Care (GCC) support phone number in Sugar Land, Texas +1 (800) 435-7365 (Option 2 or Option 3). This option will route you to the Technical Support Engineer (TSE) who is on call at the time. Licensor shall respond within two (2)</p>

	hours and shall make best effort to provide an estimate of when a resolution will be provided.
Access to Support WEB service portal	Via a Web based interface, the Licensee can track the progress of his open and closed support case status on-line, create cases, verify status of defect corrections, download code, access documentation and information about upcoming releases, and submit product enhancement requests.
Remote Diagnostic service	The proposed Network Manager system supports remote diagnostics in both hardware and software by VPN modem connection or dial-up line.
Data Debugging and Correction	Corrective maintenance (bug fixes / patches). Corrective maintenance and data transfer between parties through ABB's ftp site.
Designated Licensee Team Manager	The Licensee's "representative" - also known as Licensee Customer Advocate Manager.
Regular issue reports	Monthly issue reports that outline the status of all open issues logged into Support. This is generated and run by the Licensee Customer Advocate Manager.

2. Support Process

Before Licensor can work on a Support Request, information regarding the nature and location of the issues is required. Upon logging (via telephone or via the web-portal) a product support request the following information is required to be provided;

- Licensee name and address
- Technical Contact information (name, telephone number, email, fax, etc.)
- Licensee dial-in information, if necessary (for remote dial in access by Licensor)
- Relevant software and version numbers
- Licensee environment on which software is installed , including hardware and operating system
- Product error number and/or messages
- Detailed description of the issue, including steps to reproduce problem and frequency of occurrence
- Severity of issue and impact on Licensee's business. Severity shall be agreed between the Licensor and Licensee and shall be based on the classifications described in section 3.

Licensor support representatives shall work with the Licensee to replicate any issue logged. An issue can be classified as one of the following:

- A software defect - Software has a defect that requires to be fixed
- A software enhancement; Software operates as designed. Licensee may wish a custom modification undertaken, if this is requested the request will be passed to Licensor's professional services group
- A query; A question or clarification about the software which is not a software defect.

3. Support Request Classification

Each issue is assigned a Priority level, which is an indicator of the impact to Licensee's business (however Level 1 can only be assigned to an issue identified with the Licensee's production environment).

Priority 1	The Licensor Software is non-operational or users cannot access the system, or the functionality is significantly decreased or backup or other security of data can no longer be performed. The defect affects mission-critical functions or information in the production environment and may include, but not be limited to, data loss or corruption, system crash or missing major functionality. This may include any defect related to Licensee or personal safety, system availability, overall data integrity, or ability to serve the Licensee. Licensor will work continuously with the customer to resolve the issue or to restore production. Note 1: Priority 1 is only a valid priority ranking for Production environments. Note 2: A client representative must be available at all times for a Priority 1 case to facilitate gathering additional information, testing, and applying the solution
Priority 2	The Licensor Software is operational with functional limitations or restrictions but there is minimal business impact. Under a Priority 2, the defect will have a large impact on the functionality of the application but does not require immediate release into the production environment. This defect allows continued use of the application, but there is a known compatibility or operability disruptions with no known Licensee acceptable work-around or missing minor functionality.
Priority 3	The Licensor Software is operation with functional limitations or restrictions that are not critical to the overall system operation and the defect has a moderated impact on the functionality of the application. However, the application remains usable by all groups. A functional error exists for which there is a Licensee acceptable workaround. Failures assigned this priority level cause no delays in production.
Priority 4	The Licensor Software is operational with problems or errors, which have little impact on system operations. Priority 4 shall include, but are not limited to, documentation errors. Priority 4 defects have a minor or cosmetic error in the functionality of the application in a production environment. Defect has no impact on the ability to execute a production application. Failures assigned this priority level cause no delays in production.

4. Support Request Resolution

Severity 1 - Priority 1 (which by definition is a business critical defects in a production environment)

- These issues by their very nature require immediate attention from Licensor. These issues take priority over all other issues and Licensor shall use reasonable endeavors to provide a resolution for the defect as soon as possible.
- Licensee is required to work closely with Licensor's support center to replicate the issue and provide all necessary information and replication steps to expedite the clarification of the issue so Licensor can begin to work on a fix can begin.
- Severity 1 - Priority 1 fixes shall be issued to Licensee via the Licensor support centre in the form of an 'emergency patch' or 'hot fix'. Due to the urgency of this type of issue, emergency patches/hot fixes receive less testing prior to release than would be expected for a normal defect.
- All such fixes shall be 'rolled-into' the next maintenance release to be Issued by Licensor for the software.

Non Severity 1 - Priority 1 defects

- All these defects will be fixed on a priority basis and shall be included in a subsequent maintenance release (see below).

Maintenance Releases

- Licensor issue regular maintenance releases for its software, Maintenance releases include all defect fixes which have been fixed and tested since the release of the previous maintenance release.
- Maintenance releases will always include all fixed issues
- Maintenance releases will include as many defect fixes as possible, normally defects are fixed on a priority basis.

5. Support Request Escalation

Should Licensee requires to escalate an issues within Licensor or wishes to discuss the service level being provided, Licensee should in the first instance contact the Licensee Customer Advocate. Escalation beyond this level is to the Director of Global Customer Care, Network Control - Americas and Senior Vice President of Global Customer Care, Network Control - Americas.

EXHIBIT B

ETHICAL STANDARDS FOR CONTRACTORS SEEKING TO ENTER INTO AN AGREEMENT WITH THE CITY OF SANTA CLARA, CALIFORNIA

Termination of Agreement for Certain Acts.

- A. The City may, at its sole discretion, terminate this Agreement in the event any one or more of the following occurs:
1. If a Contractor¹ does any of the following:
 - a. Is convicted² of operating a business in violation of any Federal, State or local law or regulation;
 - b. Is convicted of a crime punishable as a felony involving dishonesty³;
 - c. Is convicted of an offense involving dishonesty or is convicted of fraud or a criminal offense in connection with: (1) obtaining; (2) attempting to obtain; or, (3) performing a public contract or subcontract;
 - d. Is convicted of any offense which indicates a lack of business integrity or business honesty which seriously and directly affects the present responsibility of a City contractor or subcontractor; and/or,
 - e. Made (or makes) any false statement(s) or representation(s) with respect to this Agreement,
 2. If fraudulent, criminal or other seriously improper conduct of any officer, director, shareholder, partner, employee or other individual associated with the Contractor can be imputed to the Contractor when the conduct occurred in connection with the individual's performance of duties for or on behalf of the Contractor, with the Contractor's knowledge, approval or acquiescence, the Contractor's acceptance of the benefits derived from the conduct shall be evidence of such knowledge, approval or acquiescence.
- B. The City may also terminate this Agreement in the event any one or more of the following occurs:
1. The City determines that Contractor no longer has the financial capability⁴ or business experience⁵ to perform the terms of, or operate under, this Agreement; or,

¹ For purposes of this Agreement, the word "Consultant" (whether a person or a legal entity) also refers to "Contractor" and means any of the following: an owner or co-owner of a sole proprietorship; a person who controls or who has the power to control a business entity; a general partner of a partnership; a principal in a joint venture; or a primary corporate stockholder [i.e., a person who owns more than ten percent (10%) of the outstanding stock of a corporation] and who is active in the day to day operations of that corporation.

² For purposes of this Agreement, the words "convicted" or "conviction" mean a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of nolo contendere within the past five (5) years.

³ As used herein, "dishonesty" includes, but is not limited to, embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, failure to pay tax obligations, receiving stolen property, collusion or conspiracy.

⁴ Contractor becomes insolvent, transfers assets in fraud of creditors, makes an assignment for the benefit of creditors, files a petition under any section or chapter of the federal Bankruptcy Code (11 U.S.C.), as amended, or under any similar law or statute of the United States or any state thereof, is adjudged bankrupt or insolvent in proceedings under such laws, or a receiver or trustee is appointed for all or substantially all of the assets of Contractor.

⁵ Loss of personnel deemed essential by the City for the successful performance of the obligations of the Contractor to the City.

2. If City determines that the Contractor fails to submit information, or submits false information, which is required to perform or be awarded a contract with City, including, but not limited to, Contractor's failure to maintain a required State issued license, failure to obtain a City business license (if applicable) or failure to provide and maintain bonds and/or insurance policies required under this Agreement.
- C. In the event a prospective Contractor (or bidder) is ruled ineligible (debarred) to participate in a contract award process or a contract is terminated pursuant to these provisions, Contractor may appeal the City's action to the City Council by filing a written request with the City Clerk within ten (10) days of the notice given by City to have the matter heard. The matter will be heard within thirty (30) days of the filing of the appeal request with the City Clerk. The Contractor will have the burden of proof on the appeal. The Contractor shall have the opportunity to present evidence, both oral and documentary, and argument.

EXHIBIT C

AFFIDAVIT OF COMPLIANCE WITH ETHICAL STANDARDS

I hereby state that I have read and understand the language, entitled "Ethical Standards" set forth in [Exhibit B](#). I have the authority to make these representations on my own behalf or on behalf of the legal entity identified herein. I have examined appropriate business records, and I have made appropriate inquiry of those individuals potentially included within the definition of "Contractor" contained in Ethical Standards at footnote 1.

Based on my review of the appropriate documents and my good-faith review of the necessary inquiry responses, I hereby state that neither the business entity nor any individual(s) belonging to said "Contractor" category [i.e., owner or co-owner of a sole proprietorship, general partner, person who controls or has power to control a business entity, etc.] has been convicted of any one or more of the crimes identified in the Ethical Standards within the past five (5) years.

The above assertions are true and correct and are made under penalty of perjury under the laws of the State of California.

ABB, INC.

By: 
Signature of Authorized Person or Representative

Name: **David W. Aldrup**
SVP, Network Control

Title: _____

NOTARY'S ACKNOWLEDGMENT TO BE ATTACHED

Please execute the affidavit and attach a notary public's acknowledgment of execution of the affidavit by the signatory. If the affidavit is on behalf of a corporation, partnership, or other legal entity, the entity's complete legal name and the title of the person signing on behalf of the legal entity shall appear above. Written evidence of the authority of the person executing this affidavit on behalf of a corporation, partnership, joint venture, or any other legal entity, other than a sole proprietorship, shall be attached.

Certificate of Acknowledgement

State of Texas

County of Fort Bend

On Sept. 19, 2017, before me, Irene Castillo,
(date) (notary)

personally appeared, David W. Aldrup,
(signers)

personally known to me

-- OR --

proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument

WITNESS my hand and official seal

Irene Castillo
(notary signature)

My Commission Expires: April 21, 2020

