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**Q. Please state your name, business address, and present position with PacifiCorp.**

A.My name is Stuart J. Kelly. My business address is 9951 SE Ankeny, Portland, Oregon 97216. My present position is Vice President, System Operations. I am responsible for the overall safe and reliable operation of PacifiCorp’s electric transmission and distribution system, including compliance with relevant North American Electric Reliability Corporation (NERC) standards and implementation of transmission operations and emergency procedures. I am testifying for Pacific Power & Light Company (Pacific Power or Company), a division of PacifiCorp.

# QUALIFICATIONS

**Q. Please describe your education and professional experience**.

A. I graduated with a Masters degree in Business Administration from the University of Strathclyde and an Honors Degree from the University of Paisley. I have been PacifiCorp’s vice president of System Operations since October 2015. Before that, I served as Vice President of major project delivery. Before joining PacifiCorp in September 2001, I worked at Scottish Power for six years in a variety of positions of increasing responsibility in that company’s acquisitions, strategy and business planning, energy supply management, commercial, customer service, and metering organizations.

# PURPOSE OF TESTIMONY

**Q. What is the purpose of your testimony?**

A. The purpose of my testimony is to describe the Company’s investment in a new Supervisory Control and Data Acquisition Energy Management System (SCADA EMS). My testimony will demonstrate why these plant additions are reasonable, necessary, and should be included in the Company’s revenue requirement for rates effective May 1, 2017.

# PURPOSE AND NECESSITY

**Q. Please provide a description of the purpose and necessity of the SCADA EMS system.**

A. A SCADA EMS is a system of computer-aided tools used by operators of electric utility grids to monitor, control and optimize the performance of the generation and transmission system. The monitor and control functions are known as SCADA, and EMS refers to the optimization packages or "advanced applications" that include a suite of applications such as generation control, trending, alarm management, data management, contingency analysis and state estimation. The SCADA EMS is essential to operations and grid monitoring. Without the SCADA EMS system, the Company would have no visibility into the real-time status of its electric system and no way to operate that system in response to system conditions. The SCADA EMS system is the principal element used to provide safe, reliable power, and maintain compliance with Federal Energy Regulatory Commission (FERC) and NERC reliability standards. The SCADA EMS system also provides Peak Reliability (PeakRC), the Reliability Coordinator (RC) for most of the Western Interconnection, critical system analytical data from the Company.

**Q. Please explain why business functions are unmet by the Company’s existing system.**

A.PacifiCorp’s existing SCADA EMS is a legacy Ranger® Network Manager (NM2003) system purchased from Ventyx/ABB in 2002 and went live in 2005. PacifiCorp is currently the last customer running this version. The system runs obsolete hardware and software that is no longer capable of meeting current or future business requirements. As new standards are developed, maintaining an unsupported system represents a high non-compliance risk related to recent NERC reliability and Critical Infrastructure Protection Standards (CIPS) requirements. For example:

* The platform on which the existing SCADA EMS runs is obsolete and, due to lack of vendor support and cost/difficulty of customization, cannot practically be adapted to meet business requirements related to compliance, growth and reliability.
* The existing SCADA EMS application does not support proper password management. This access management is currently addressed through manual intervention. While this is acceptable to comply with CIPSv3, it will not comply with CIPSv5 which becomes effective April 1, 2016.
* The underlying hardware infrastructure is no longer supported with routine updates by the vendors (Hewlett Packard and Oracle), replacement parts are not available, and the commercial availability of components is limited to used equipment. Hewlett Packard stopped issuing operating system patches in 2010. The last supported update was applied to our environment in 2013. The ABB Ranger system (NMR2003) update was last applied in 2008.

**Q. Are there any other risks associated with failing to upgrade the Company’s existing legacy system?**

A. Failing to upgrade the legacy system would expose the business to increased risk of

 system failure, hinder the addition of new functionality and potentially cause issues that could result in additional NERC violations and penalties.

**Q. Has the Company reviewed any alternative solutions?**

A. Yes. PacifiCorp could upgrade the existing ABB SCADA EMS Ranger NM2003 to latest (and final) version under the current architecture, NMR5. However, PacifiCorp would be required to replace that version within five years with ABB’s next version, called “common release,” due to NMR5 obsolescence. PacifiCorp considered, but did not move forward, due to uncertainty about the viability of both the NMR5 and “common release” platforms.

While NMR5 is the logical next step for ABB customers running NM2003, it is effectively obsolete. ABB’s focus now is on its “common release” platform. In addition, support for the Hewlett Packard Itanium-based hardware required to sustain NMR5 is dwindling due to lack of market share. Based on the current product roadmaps for ABB and Hewlett Packard, an upgrade to ABB’s “common release” would be required within five years after an upgrade to NMR5. The upgrade from NMR5 to “common release” would require complete hardware and software replacement due to system and architectural changes, essentially making it a replacement project.

Although upgrading the system now and moving to ABB’s common release within five years would cause less business process disruptions in the short term, it would result in two business process disruptions of 18-24 months, each, to manage the transition to NMR5 then to “common release”. In addition, it would not eliminate the technology obsolescence issues and would require migration of custom functionality.

The projected capital cost to implement this alternative on a total-company basis is $38.9 million, as opposed to projected costs of $33.9 million for a new SCADA EMS system with additional automation and functionality.

**Q. Please describe the process by which the Company selected the new system.**

A. A request for proposals (RFP) was released to five vendors. All five vendors responded to the RFP and participated in on site presentations and demonstrations. The presentations followed a common script with common questions, and were followed up with ad hoc conversations where appropriate. A formal scoring process was followed to rate all vendors relative to both technical criteria and commercial terms. Open Systems International, Inc. was chosen as the winner, and, in conjunction with development of a specific statement of work, a contract was successfully negotiated and agreed between PacifiCorp and Open Systems International, Inc. in May 2013.

**Q. Please describe the key benefits of the new system.**

A. The key benefits associated with replacement of the existing SCADA EMS include the following:

* Eliminate operational risks associated with the obsolete Ventyx/ABB SCADA EMS software and hardware, which will enhance system availability and support.
* Modern SCADA EMS provides standard functionality and is hardware independent, where previous generations of SCADA EMS required extensive customization and purpose built hardware to conform to the specific needs of each individual utility. Further, the previous extensive custom functions of aged systems have been replaced with flexible configurations that are much less resource intensive.
* Facilitate advancement of system capacity and performance goals to meet business requirements, such as the ability to support improved situational awareness through full system overview displays with increased functionality, process monitoring/notifications, improved contingency analysis and state estimation tools, and improved alarm management applications.
* Improve the ability to comply with NERC reliability and CIPS requirements by providing industry-standard infrastructure and tools including major application/process monitoring.
* Improve compliance with CIPS access management requirements by expanding account management through Active Directory integration.
* Promote compliance with emerging NERC 693 Standards, such as the PER-005 requirement that simulation training must be completed on the operator’s system, which cannot be done on Ranger.
* Support emerging requirements related to supplying synchro-phasor data measurements to Western Electricity Coordinating Council to better manage the bulk electric system in the Western Interconnection.
* Enable improved, more flexible real-time calculation configurations. This flexibility greatly increases efficiency of adapting changes to support system conditions.
* Expand ability to perform online, incremental database updates, which will reduce the outage time necessary to deliver enhancements to the system.

**Q. When will the new system be fully implemented?**

A. The new system is expected to be placed in service by March 31, 2016.

# PROJECTED COSTS

**Q. What are the projected costs associated with the SCADA EMS system included in rate base in this proceeding and described in your testimony?**

A. The projected costs are $33.9 million on a total-company basis. The revenue requirement for this project is shown in the testimony and exhibits of Ms. Shelley E. McCoy.

**Q. Does this conclude your direct testimony?**

A. Yes.