



QUANTA
TECHNOLOGY

PROPOSAL

Support in Reviewing Field Performance of the Lake Worth AMI System

PREPARED FOR

Florida Municipal Power Agency
(FMPPA)

PROPOSAL DATE

January 22, 2020
(Version 1)

PREPARED BY

Diana Prkacin
DPrkacin@Quanta-Technology.com
(919) 737-5519

QUANTA TECHNOLOGY, LLC

4020 Westchase Boulevard, Suite 300, Raleigh, NC 27607 USA

RALEIGH (HQ) | TORONTO | SAN FRANCISCO BAY AREA | SOUTHERN CALIFORNIA | CHICAGO

www.Quanta-Technology.com

Quanta Technology, LLC is a wholly-owned subsidiary of Quanta Services, Inc. (NYSE: PWR)

© 2020 QUANTA TECHNOLOGY, LLC | CONFIDENTIAL & PROPRIETARY



CONFIDENTIAL/PROPRIETARY: This document contains trade secrets and/or proprietary, commercial, or financial information not generally available to the public. It is considered privileged and proprietary to the Offeror, and it is submitted by Quanta Technology, LLC in confidence with the understanding that its contents are specifically exempted from disclosure under the Freedom of Information Act [5 USC Section 552 (b) (4)] and shall not be disclosed by the recipient (whether it be Government [local, state, federal, or foreign], private industry, or non-profit organization) and shall not be duplicated, used, or disclosed, in whole or in part, for any purpose except to the extent in which portions of the information contained in this document are required to permit evaluation of this document, without the expressed written consent of the Offeror. If a contract is awarded to this Offeror as a result of, or in connection with, the submission of this data, the right to duplicate, use, or disclose the data is granted to the extent provided in the contract.

VERSION HISTORY:

| Version | Date | Description |
|---------|-----------|--------------------|
| 1 | 1/22/2020 | Initial submission |
| | | |
| | | |



EXECUTIVE SUMMARY

Quanta Technology has met with the City of Lake Worth to evaluate their automated meter infrastructure (AMI) system performance. Based on that discussion, Lake Worth has requested a proposal to provide support in reviewing the field performance of the Lake Worth AMI system in more detail. This proposal outlines the project to review the AMI system performance data at Lake Worth and with the AMI supplier. It should be noted that, since this is a review, the tasks or areas for further review may need to be changed during the project. All plans will be reviewed with Lake Worth beforehand. The proposed terms and conditions are based on Quanta Technology's existing Master Service Agreement (MSA) with the Florida Municipal Power Agency (FMPA) and our initial proposal.



TABLE OF CONTENTS

| | |
|---|-----|
| EXECUTIVE SUMMARY..... | iii |
| 1 PROJECT DESCRIPTION..... | 1 |
| 1.1 Scope of Work..... | 1 |
| 1.2 Methodology..... | 1 |
| 1.2.1 Task 1: Gathering Data at Lake Worth..... | 1 |
| 1.2.2 Task 2: Initial Performance Analysis | 1 |
| 1.2.3 Task 3: Initial Summary and Review | 2 |
| 1.2.4 Task 4: Meet with AMI Supplier to Review Summary..... | 2 |
| 1.2.5 Task 5: Update Performance Analysis | 2 |
| 1.2.6 Task 6: Updated Summary Presentation | 2 |
| 2 PROPOSED PROJECT TEAM | 3 |
| 2.1 Key Personnel..... | 3 |
| 2.2 Project Organization..... | 3 |
| 3 PRICING AND TERMS..... | 4 |
| 3.1 Pricing..... | 4 |
| 3.2 Expiration Date..... | 6 |
| 3.3 Terms and Conditions | 6 |
| APPENDIX A: PROJECT TEAM RESUMES | 7 |



1 PROJECT DESCRIPTION

Quanta Technology, LLC, is submitting this proposal in response to the City of Lake Worth's (the City's) Request for Proposal for Support in Reviewing Field Performance of the Lake Worth AMI System.

1.1 Scope of Work

Quanta Technology has met with the City of Lake Worth to evaluate their automated meter infrastructure (AMI) system performance. Based on that discussion, Lake Worth has requested a proposal to provide support in reviewing the field performance of the Lake Worth AMI system in more detail. This proposal outlines the project to review the AMI system performance data at Lake Worth and with the AMI supplier. It should be noted that, since this is a review, the tasks or areas for further review may need to be changed during the project. All plans will be reviewed with Lake Worth beforehand. The proposed terms and conditions are based on Quanta Technology's existing Master Service Agreement (MSA) with the Florida Municipal Power Agency (FMPA) and our initial proposal.

1.2 Methodology

1.2.1 Task 1: Gathering Data at Lake Worth

1.2.1.1 Task 1.1: Review of System Performance

Prior to the on-site meeting, the Quanta Technology team will hold a kickoff call with the City's team to set expectations and requirements for the data gathering portion of this project. Quanta Technology proposes a 1-week on-site meeting to gather the system performance data. Typical metrics include daily read success rate, review of meters that fail to read, location of meters that fail to read, take out point failures, head end software issues, reported meter issues, and other relevant metrics.

1.2.1.2 Task 1.2: Review of Meter RMAs

During the same week, Return Material Authorization (RMA) data will also be reviewed. Once a smart meter has a failure, the RMA process is typically used to return the meters to the supplier for analysis and repair. Typical data to be reviewed include number of meters with issues, types of issues, repeat issues, and root cause analysis from the supplier.

1.2.1.3 Task 1.3: Review of Processes

At the end of the week, the team will discuss any identifiable process changes or gaps to help in the collection of system performance data.

1.2.2 Task 2: Initial Performance Analysis

Based on the on-site work, Quanta Technology will analyze the data and provide an overview of the system performance.



1.2.3 Task 3: Initial Summary and Review

The intent of the review is to provide the City with some metrics in system performance from Task 2 and identify any gaps in data collection and analysis. In addition, any questions needing clarification by the AMI supplier will be discussed. These results will be reviewed via a webinar.

1.2.4 Task 4: Meet with AMI Supplier to Review Summary

Following the review with the City, Quanta Technology would like to meet with the AMI supplier to review any performance metrics they have, review the performance summary from the Lake Worth meeting, and understand the supplier's perspective on system issues and .a path forward.

1.2.5 Task 5: Update Performance Analysis

Based on the meeting with the AMI supplier, Quanta Technology will update the system performance presentation. Quanta Technology will provide the presentation to the AMI supplier for comments.

1.2.6 Task 6: Updated Summary Presentation

The updated system performance summary will be presented at Lake Worth to facilitate questions and discussion.



2 PROPOSED PROJECT TEAM

Quanta Technology’s project team is composed of experts who have worked together previously on similar projects. This section provides details on their qualifications, how they will be organized, and who will work on what aspects of the City of Lake Worth’s project.

2.1 Key Personnel

The following personnel are being proposed for this project:

- **Nikitas Zagoras**, *Senior Engineer*, Project Manager
- **Dr. Robert Dumas**, *Principal Advisor*, Technical Lead
- **Dr. David Hart**, *Executive Advisor*, Executive Advisor
- **Dr. Susane Nemezc**, *Associate*, Project Team

2.2 Project Organization

The organizational chart below shows the working structure proposed for this project. Nikitas Zagoras will serve as the Project Manager, overseeing all the activities, project schedule, work assignment, on-time delivery, quality assurance, and coordination with the customer.

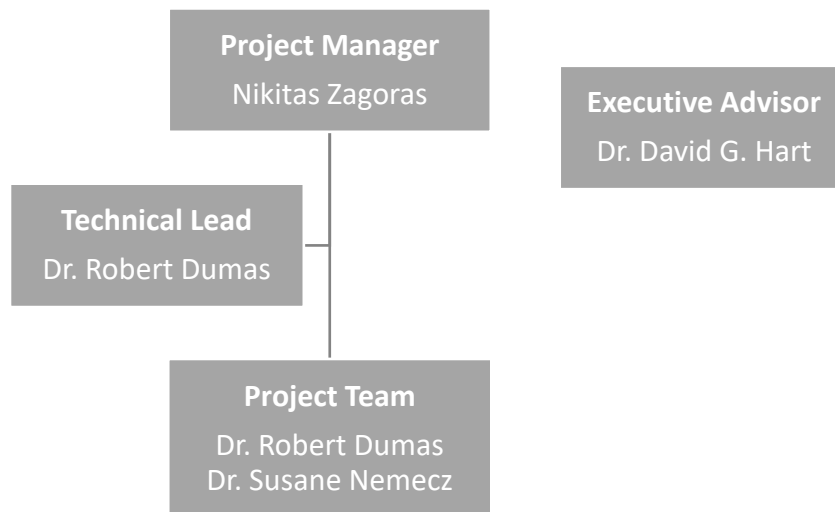


Figure 2-1. Project Organization Chart



3 PRICING AND TERMS

3.1 Pricing

Due to the exploratory nature of this project, the task scope may change. Quanta Technology will review any scope or budget changes with Lake Worth for approval beforehand and request a change order if required.

Quanta Technology offers the scope of work, deliverable items, and project team described in this proposal on a Time and Material basis. Travel and lodging will be billed at cost. These rates (Table 3-1) are exclusive of taxes, which are the sole responsibility of the customer.

The cost for the project on a Time and Materials basis is **\$62,117** (including travel and lodging). This is a budgetary estimate. The project will be regularly reviewed to evaluate progress based on the planned scope and budget estimate. The project price is calculated based on the scope of work, rates, and the assumptions outlined in this proposal. If changes to the scope or assumptions are required, the project price will be updated. Periodic reviews of the cost to date, cost estimates, and schedules will be conducted with the City of Lake Worth during the project execution.

Table 3-1. Quanta Technology Hourly Rates for 2020 (FMPA MSA: 10% Discount)

| Title | FMPA MSA Rates (10% Discount) |
|--------------------------|----------------------------------|
| Executive Advisor | \$331 |
| Principal Advisor | \$279 |
| Senior Advisor | \$237 |
| Advisor | \$199 |
| Principal Engineer | \$175 |
| Senior Engineer | \$158 |
| Engineer III | \$142 |
| Engineer II | \$128 |
| Engineer I | \$112 |
| Senior Project Manager | \$189 |
| Project Manager | \$166 |
| Associate | \$160 |
| Analyst | \$95 |
| Administrative | \$48 |

Pricing is presented in Table 3-2, pricing assumptions are presented in Table 3-3, and travel expenses are presented in Table 3-4.



Table 3-2. Pricing

| Task # | Task | Hours | Amount |
|--------------|--|------------|-----------------|
| 1 | Gathering Data at Lake Worth | -- | -- |
| 1.1 | Review of System Performance | 35.2 | \$7,183 |
| 1.2 | Review of Meter RMAs | 35.2 | \$7,183 |
| 1.3 | Process Review | 17.6 | \$3,778 |
| 2 | Initial Performance Analysis | 72.6 | \$15,806 |
| 3 | Initial Summary and Review | 17.6 | \$3,778 |
| 4 | Meet with AMI Supplier to Review Summary | 26.4 | \$5,666 |
| 5 | On-Site Update Performance Analysis | 37.4 | \$8,250 |
| 6 | Updated Summary Presentation | 19.8 | \$4,473 |
| Total | | 262 | \$56,117 |

Table 3-3. Pricing Assumptions

| Item | Assumptions |
|------|---|
| 1 | Two Quanta Technology project team members (Dr. Robert Dumas and Dr. Susane Nemezc) will be on-site for initial data gathering. |
| 2 | City staff will be available for data gathering interviews. |
| 3 | Presentation of Initial Performance Summary will occur via a webinar. |
| 4 | The City will assist in getting AMI supplier to review performance summary. |
| 5 | Updated performance analysis will be presented on site. |
| 6 | Some data may need to be monitored and the performance tracked for further analysis – this is <u>not</u> included in the scope. |
| 7 | The project tasks will be reviewed with Lake Worth during the process and may need to be altered based on performance findings. |
| 8 | The City’s legal staff will cover legal aspects in all negotiations |
| 9 | Quanta Technology will be granted remote access to the Lake Worth AMI head end system during the project. |

Table 3-4. Travel Expenses

| Travel | Amount |
|--|----------------|
| On-Site Data Gathering at Lake Worth | \$4,200 |
| Meeting to Present Performance Summary | \$1,800 |
| Total | \$6,000 |



3.2 Expiration Date

This offer is valid for 90 days from the date of issue. For information about extensions of the offer, contact Diana Prkacin at DPrkacin@Quanta-Technology.com or (919) 737-5519

3.3 Terms and Conditions

The proposed terms are based on Quanta Technology's existing Master Service Agreement (MSA) with FMPA, dated August 23, 2017, and our initial proposal.



APPENDIX A: PROJECT TEAM RESUMES

- **Nikitas Zagoras**, *Senior Engineer*, Project Manager
- **Dr. Robert Dumas**, *Principal Advisor*, Technical Lead
- **Dr. David Hart**, *Executive Advisor*, Executive Advisor
- **Dr. Susane Nemezc**, *Associate*, Project Team



Nikitas Zagoras

Nikitas Zagoras, *SENIOR ENGINEER, Protection, Control & Automation*, has expertise in powers systems protection and controls for transmission and distribution, as well as DG interconnection/integration studies and distribution automation. During his MSEE at Clemson, Nikitas worked on research projects involving phasor measurement unit (PMU) applications, dynamic state estimation, and energy storage systems. Nikitas has 4 years of experience in power systems operation, design, and maintenance for Mission Critical Facilities. Prior to joining Quanta Technology, he worked for Schweitzer Engineering Laboratories where he gained valuable experience in power systems protection and controls.



*Senior Engineer
Protection, Control
& Automation*

Areas of Expertise

- Power System Protection
- Power System Operations & Control
- Project Management

Experience & Background

- Years of experience in the electric power industry2008–Present
- Senior Engineer, Quanta Technology.....2016–Present
- Engineering Intern, Protection, Schweitzer Engineering Laboratories..... 2015–2015
- Research/Teaching Assistant, Power Systems, Clemson University..... 2012–2015
- Electrical Engineer, Lamda Hellix 2008–2011
- Engineering Intern - Electrical, Olympic Airways 2006

Accomplishments & Industry Recognition

- IEEE senior member, Power and Energy Society
- IEEE PES Worcester County Chair, 2018
- Professional Engineer, Greece

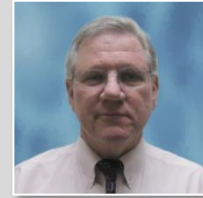
Education

- MSc, Electrical Engineering, Clemson University, 2015
- MSc, Project Management, City University of Seattle, 2010
- BSc, Electrical Engineering, Piraeus University of Applied Sciences, 2007



Robert Dumas, PhD

Robert Dumas, PhD, *PRINCIPAL ADVISOR, Protection, Control & Automation*, has over 40 years of experience with increasing levels of organizational responsibility in electrical, nuclear, mechanical, and environmental engineering positions associated with electric utility generation, transmission operations, and advanced metering infrastructure (AMI) smart-grid solutions for some of the largest utilities in the U.S. and internationally. This experience includes 17+ years with Virginia Power Nuclear Design Engineering and 17 years in the AMI industry with Elster Solutions (formerly ABB) and Itron Inc. With Quanta Technology, he has been responsible for project execution of the multi-million-dollar Wide-Area Protection project for National Grid Saudi Arabia, as well as ongoing AMI consulting projects.



Principal Advisor
*Protection, Control
& Automation*

Areas of Expertise

- Project & Program Management
- Advanced Metering Infrastructure (AMI)
- Smart Metering
- Meter Data Management Systems
- GIS system application
- Utility Operations
- Resource Planning
- Nuclear plant instrumentation & control
- Nuclear and EMS SCADA systems

Experience & Background

- Years of experience in the electric power industry1977–Present
- Principal Advisor, Quanta Technology2016, 2018–Present
- Director, Solution Delivery, Itron Inc. 2017–2018
- Managing Partner, Smart Grid Consulting Associates, LLC..... 2015–2016
- Vice President, Program Implementation, Elster Solutions (formerly ABB)..... 1999–2014
- Senior Researcher and Doctoral Student, Environmental Engineering, NCSU 1995–1999
- Senior Staff Engineer, Nuclear Design and Power Supply, Virginia Power 1977–1994

Education

- PhD, Environmental Engineering, North Carolina State University (NCSU), 1999
- MS, Environmental Engineering, North Carolina State University (NCSU), 1996
- BS, Nuclear Engineering, North Carolina State University (NCSU), 1977



David G. Hart, PhD

David Hart, PhD, EXECUTIVE ADVISOR, Vice President, Protection, Control & Automation, has over 25 years of experience in the power industry including protection and control, power system automation, smart metering, and various research experience. He has been involved with the development of Automated Metering Infrastructure (AMI) products and systems for over 10 years, directing the product management, engineering, and quality teams. As head of Protection & Control, he is responsible for overall business strategy, client and program proposals, and project execution for the business area. David holds over 25 patents and is a Senior Member of IEEE/PES.



Vice President
Protection, Control
& Automation

Areas of Expertise

- Protection and Control
- Substation Automation
- Feeder Automation
- Advanced Metering Infrastructure
- Smart Metering

Experience & Background

- Years of experience in the electric power industry1992–Present
- VP, Protection, Control, and Automation, Quanta Technology.....2015–Present
- VP, Automation Solutions, ABB..... 2014–2015
- Executive Director Solutions, ABB..... 2013–2014
- Senior Vice President Solutions (PM, Engineering, Quality, Support), Elster Electricity 2006–2013
- Vice President of Engineering and Quality, Elster Electricity..... 2001–2006
- Automation Program Manager, ABB 1999–2001
- Automation Technology Center Manager, ABB..... 1997–1999
- Technology Team Leader, ABB..... 1996–1997

Accomplishments & Industry Recognition

- ABB Achievement Award
- Numerous technical disclosures in metering, power system protection, control and automation
- Numerous patents issued
- Numerous industry publications
- IEEE/PES Senior Member

Education

- PhD, Electrical Engineering (Power Systems), Clemson University, 1991
- MS, Electrical Engineering (Power Systems), Clemson University, 1987
- BS, Mathematics and Physics, Wofford College, SC, 1985



Susane Nemezc, PhD

Susane Nemezc, PhD, *ASSOCIATE, Advanced Metering Infrastructure (AMI)*, has over 20 years of experience in the utility industry, including 8 years of software development and quality assurance and 9 years of customer deployment and support of advanced metering infrastructure (AMI). She provided leadership for the technical customer support group at Elster Solutions (formerly ABB), serving 160 customers in North America, Central America, and Asia-Pacific with different AMI/AMR solutions in a 24x7 schedule; generating \$6M+ in yearly revenue. She also managed a \$1.5M complex customer system upgrade project (software and hardware upgrade) in Canada.



Associate
Advanced Metering Infrastructure (AMI)

Areas of Expertise

- Customer Support
- Project Management
- Advanced Metering Infrastructure (AMI) Systems
- Smart Metering & Troubleshooting
- Software Development

Experience & Background

- Years of experience in the electric power industry1995–Present
- Associate, Advanced Metering Infrastructure (AMI), Quanta Technology2020–Present
- Principal Project Engineer, Elster Solutions (formerly ABB) 2014–2015
- Manager of AMI Customer Support and Services, Elster Solutions (formerly ABB)..... 2006–2014
- Quality Control Assurance, Elster Solutions (formerly ABB)..... 2003–2006
- Software Development, Elster Solutions (formerly ABB) 1998–2003

Education

- PhD, Biochemistry, University of Szeged, Szeged, Hungary
- MS, Physical Chemistry, University of Szeged, Szeged, Hungary
- BS, Chemistry, University of Szeged, Szeged, Hungary
- Certificate in Computer Programming - North Carolina State University, Raleigh, NC