

0150-12719-0000

TRANSMITTAL

TO Janisse Quinones, General Manager Los Angeles Department of Water and Power	DATE 8/30/2024	COUNCIL FILE
FROM The Mayor	COUNCIL DISTRICT ALL	

**LOS ANGELES DEPARTMENT OF WATER AND POWER PROPOSED BOARD
RESOLUTION AUTHORIZING A SECOND AMENDMENT TO AGREEMENT NO. 47577
WITH POWER COSTS, INC. FOR ENERGY IMBALANCE MARKET MERCHANT
BIDDING AND SCHEDULING SYSTEM SUPPORT**

Transmitted for further processing and Council consideration.
See the City Administrative Officer report attached.



MAYOR
(Carolyn Webb de Macias for)

Attachment
MWS:PJH:JVW:IR:JFH:10250040t

REPORT FROM

OFFICE OF THE CITY ADMINISTRATIVE OFFICER

Date: August 19, 2024

CAO File No.: 0150-12719-0000

Council File No.:

Council District: ALL

To: The Mayor

From: Matthew W. Szabo, City Administrative Officer

Reference: Correspondence from the Department of Water and Power dated June 10, 2024; received and referred by the Mayor for a report on July 1, 2024

Subject: **LOS ANGELES DEPARTMENT OF WATER AND POWER PROPOSED RESOLUTION AUTHORIZING A SECOND AMENDMENT TO AGREEMENT NO. 47577 WITH POWER COSTS, INC. FOR ENERGY IMBALANCE MARKET MERCHANT BIDDING AND SCHEDULING SYSTEM SUPPORT**

RECOMMENDATIONS

That the Mayor:

1. Approve the Los Angeles Department of Water and Power proposed Board Resolution authorizing a Second Amendment to Agreement No. 47577 with Power Costs, Inc. to extend the existing five-year term for an additional three years, with two one-year extension options, from November 18, 2024 through November 17, 2029, for a total term of 10 years, with an increase in the not-to-exceed contract amount of \$9,999,887 from \$8,541,860 to \$18,541,747, including a 10 percent contingency, for continued technical support services including software updates, configuration, hosting and maintenance of the Market Merchant Bidding and Scheduling System required for continued participation in the Western Energy Imbalance Market;
2. Authorize and direct, upon proper certification, the Chief Accounting Employee to draw demands on the Power Revenue Fund over the term of both this Amendment to the Agreement and the accompanying Resolution; and,
3. Return the proposed Resolution to the Los Angeles Department of Water and Power for further processing, including Council consideration.

SUMMARY

The Los Angeles Department of Water and Power (LADWP, Department) requests authority to execute a Second Amendment to Agreement No. 47577 with Power Costs, Inc. (Power Costs) for continued Market Merchant Bidding and Scheduling System (MMBS) software technical support services including software updates, configuration, hosting, and maintenance.

Approval of the proposed Second Amendment will extend the agreement's current five-year term for an additional three years with two one-year extension options, from November 18, 2024 through November 17, 2029, for a potential total term of 10 years. The proposed Amendment also increases the total not-to-exceed amount of the Agreement by \$9,999,887, from \$8,541,860 to \$18,541,747, including 10 percent for contingencies. Additional changes are made to the Agreement as described in the Attachment, in a revised Exhibit C, Fee Schedule and an updated Exhibit H, Statement of Work. All other contract terms and conditions remain unchanged.

In 2017, the Board of Water and Power Commissioners (Board) and the Los Angeles City Council approved the Energy Imbalance Market Implementation Agreement with the California Independent System Operator (CAISO) in an effort to attain the lowest-cost energy to serve real-time customer demand, while sharing resources with participating entities in the western United States. The Western Energy Imbalance Market, operated by CAISO, is a real-time wholesale energy trading market that enables participants anywhere in the western United States to buy and sell energy when needed. The Power Costs MMBS software is a critical operational tool used on a daily basis to plan and dispatch LADWP's power system resources reliably, economically and in compliance with environmental regulations. The MMBS software is required for participation in CAISO and the Western Energy Imbalance Market which significantly lowers the cost of power provided to LADWP customers.

Power Costs is the sole provider of the expanded functionality of this proprietary software previously purchased by the LADWP under competitive solicitation and, therefore, all functional upgrades, updates, and maintenance must be provided by the firm.

The City Attorney has approved the proposed Second Amendment as to form. In accordance with Charter Section 373 and the Los Angeles Administrative Code Section 10.5(e), the proposed Amendment requires City Council approval because the total term of the agreement is greater than five years. This Office has reviewed the request and recommends approval.

BACKGROUND

In 2017, the Board and the City Council approved the LADWP's Energy Imbalance Market Implementation Agreement with CAISO in an effort to attain the lowest-cost energy to serve real-time customer demand, while sharing resources with participating entities in the western United States (C.F. 17-0312).

Initial Contract and First Amendment – The MMBS software system was competitively purchased by the Department on May 4, 2010, utilizing Request for Proposal No. 226-09 authorized by Board Resolution 010 310 (Agreement No. 47957). On November 5, 2019, the Board approved Resolution No. 020 075, awarding an initial contract to Power Costs under Request for Sole Source Proposal No. 90493. Agreement No. 47577 provides for software, configuration, maintenance, support, and training services for the MMBS system acquired in 2010. The acquisition of the MBSS software was essential for entrance into the CAISO in April 2021.

On September 14, 2021, the Board adopted Resolution No. 022 021, authorizing a First Amendment to the Agreement. The amendment increased the not-to-exceed amount by \$3,578,344, from \$4,963,516 to \$8,541,860, and included a 10 percent contingency.

Western Energy Imbalance Market (WEIM) - The Western Energy Imbalance Market, operated by CAISO, is a real-time wholesale energy trading market that enables participants anywhere in

the western United States to buy and sell energy when needed. Participating utilities use the WEIM to balance supply and demand within their respective service areas in real time by scheduling power deliveries every 15 minutes with five-minute resource dispatching. WEIM's advanced market systems automatically find the lowest-cost energy to serve real-time customer demand across a wide geographic area.

A key advantage of the pooling of resources through the WEIM is that it allows renewables such as wind and solar in a broad market area to be operated with less volatility. The result is less curtailment of the operation of renewable energy which, in turn, correlates with reduced greenhouse gas emissions.

The Power Costs MMBS software is operationally critical and is used to perform many tasks that are essential to the reliable operation of the LADWP power system and is required for participation in the WEIM, including automating processes for transactions and interfaces with CAISO systems. The MMBS system exchanges information with other WEIM-related software systems, including system load, Variable Energy Resources generation estimates, and other information that affects base schedule optimization.

The MMBS system enables LADWP's bidding into the WEIM by generating optimal base schedules to communicate LADWP's load and generation information to the Market and any dispatch constraints. By utilizing the MMBS system across a large geographic area, LADWP manages power resources to serve its customers while significantly lowering the cost of power provided.

The contracts for three other LADWP information systems which are equally critical for continued participation in CAISO and the Energy Imbalance Market (EIM) are also expiring soon, and their extension or replacement is being addressed by the Department in separate requests to the Board and Council. The other information systems and agreement numbers are:

1. EIM Settlements and Transmission Billing Systems (Agreement No. 47565)
2. EIM Market Merchant Bidding and Scheduling System (Agreement No. 47573)
3. EIM Variable Energy Resources Forecasting System (Agreement No. 47595)

Second Amendment Changes and Costs – The proposed Amendment will provide continued MMBS software technical support services, including software updates, configuration, hosting, and maintenance required for a critical operational tool that is essential for the continued participation in the EIM during the term of this proposed Amendment.

The proposed Amendment extends the terms of the agreement by three years, from five to eight years, with two one-year extension options, from November 18, 2024 through November 17, 2029, for a potential total term of 10 years. The proposed Amendment also increases the not-to-exceed contract maximum amount by \$9,999,887 from \$8,541,860 to \$18,541,747, including 10 percent amount for contingencies.

The proposed Amendment revises Exhibit C, Fee Schedule to account for changes in the Consumer Price Index. Exhibit H, Statement of Work, Attachment C, involving Hosted Requirements, is also replaced to add a new Attachment D that defines the MMBS system's Hosted Service Storage and Compute Limits. All other contract terms and conditions remain unchanged.

Power Costs has performed satisfactorily under this Agreement.

Alternatives Considered – There are no viable alternatives. The Department considered development of a new competitive solicitation. However, a new solicitation is not a viable option since it would require LADWP to abandon the time, resources, and funding already invested in the current software that remains useful for many years to come. The Department also explored the training of staff to upgrade, configure, and maintain the software. The Power Costs software is proprietary, and the firm will not allow the Department to access or modify their software as such actions would void the vendor warranty and seriously impair software support services. It is therefore in LADWP's best interest to have Power Costs continue to provide hosting, software maintenance, and support services for the MMBS.

As a substantial participant in the WEIM supporting nearly 80 percent of California's total energy consumption, LADWP's assets are vital to this market. During the 2022–2023 fiscal year, the LADWP's Power Costs software system contributed to a net ratepayer savings of approximately \$50 million. Lack of availability of this software package would force LADWP's withdrawal from the WEIM as required by the CAISO Tariff and result in significant financial losses.

CITY COMPLIANCE

California Environmental Quality Act (CEQA) – The LADWP has determined, subject to Board approval, that this action is exempt from CEQA pursuant to Section 15060(c)(3) which states that an activity is not subject to CEQA if it does not meet the definition of a project. Section 15378(b) (2) states that continuing administrative or maintenance activities, such as amendments to existing contracts, do not meet that definition. Therefore, the award of a contract amendment for software support services to Power Costs is not subject to CEQA.

Charter Section 1022 – Pursuant to Charter Section 1022, the Department determined that it is more feasible to have the work performed by an independent contractor than by City employees.

The City Attorney has approved the proposed Second Amendment as to form. In accordance with Charter Section 373 and the Los Angeles Administrative Code Section 10.5(e), the Amendment requires City Council approval because the total term of the agreement is greater than five years. Our Office has reviewed the request and recommends approval.

FISCAL IMPACT STATEMENT

Approval of the proposed Second Amendment to Agreement No. 47577 with Power Costs, Inc. for hosting, software maintenance, and support services for the LADWP's Market Merchant Bidding and Scheduling System will not have an impact on the General Fund. Approval of the proposed Second Amendment increases the maximum not-to-exceed contract amount by \$9,999,887, including a 10 percent contingency, from \$8,541,860 to \$18,541,747, and extends the term by an additional three years, with two one-year extension options, for a total of 10 years, all of which is funded by LADWP's Power Revenue Fund.

Attachment – June 10, 2024 Correspondence from LADWP, Proposed Resolution, and Amendment

MWS:PJH:JVW:IR/JFH:10250040



BUILDING A STRONGER L.A.

Karen Bass, Mayor

Board of Commissioners

Richard Katz, President

George S. McGraw, Vice President

Nurit D. Katz

Mia Lehrer

Wilma J. Pinder

Chante L. Mitchell, Secretary

Janisse Quiñones, Chief Executive Officer and Chief Engineer

June 10, 2024

The Honorable Karen Bass
Mayor, City of Los Angeles
Room 303, City Hall
Mail Stop 370

Attention: Ms. Heleen Ramirez, Legislative Coordinator

Dear Mayor Bass:

Subject: Amendment No. 2 to Agreement No. 47577 for Energy Imbalance Market Merchant Bidding Scheduling System with Power Costs, Inc.

In accordance with Executive Directive No. 4, enclosed is a copy of a Board letter and supporting documents recommending approval and transmittal to the Los Angeles City Council of Amendment No. 2 to Agreement No. 47577 between the Los Angeles Department of Water and Power and Power Costs, Inc. for Energy Imbalance Market (EIM), Merchant Bidding and Scheduling (MBS) System.

It is respectfully requested that your office complete its review as soon as possible. Once the required City Administrative Officer report has been received, the matter will be scheduled for action by the Los Angeles Board of Water and Power Commissioners and forwarded to the City Council for final consideration.

Please contact Mr. Paul Habib, Interim Director of Legislative and Intergovernmental Affairs, at (213) 367-3846 upon completion of the review, if the review will take longer than 30 days, or if there are any questions regarding this item.

Sincerely,

A handwritten signature in red ink, appearing to read 'Janisse Quiñones'.

Janisse Quiñones
Chief Executive Officer and Chief Engineer

JNL:slr

Enclosures

c/enc: Mr. Luis Gutierrez, Office of the Mayor

Dr. Frederick H. Pickel, Office of Public Accountability

Board of Water and Power Commissioners

Mr. Paul Habib



Los Angeles
Department of
Water & Power

RESOLUTION NO. _____

BOARD LETTER APPROVAL

SIMON ZEWDU
Senior Assistant General Manager
Power System

ARAM BENYAMIN
Chief Operating Officer

JANISSE QUIÑONES
Chief Executive Officer and Chief Engineer

DATE: May 23, 2024

SUBJECT: Amendment No. 2 to Agreement No. 47577 for Energy Imbalance
Market Merchant Bidding & Scheduling System with Power Costs, Inc.

SUMMARY

This proposed Amendment No. 2 (Amendment) to Agreement No. 47577 (Agreement) with Power Costs, Inc. (PCI) is to extend the term of the Agreement by an additional three-year period with two one-year extension options, for a total term of up to ten years and increase the agreement not-to-exceed amount by \$9,999,887 from \$8,541,860 to \$18,541,747 (budgeted), including 10 percent contingency.

This Amendment will provide for LADWP's continued use of PCI's proprietary Merchant Bidding and Scheduling (MBS) System software and related technical support services, including software updates, configurations, hosting, and maintenance required to continue LADWP's successful participation in the California Independent System Operator's (CAISO) Western Energy Imbalance Market (WEIM also known as EIM). This Amendment also includes additional software options for future market expansion.

City Council approval is required in accordance with Charter Section 373.

RECOMMENDATION

It is requested that the Board of Water and Power Commissioners (Board) adopt the attached Resolution recommending City Council's approval of the Amendment to the Agreement with PCI.

ALTERNATIVES CONSIDERED

The following alternatives to this Amendment were considered:

1. Develop a new competitive solicitation. This alternative is not a viable option and is not cost effective to LADWP. This would require LADWP to abandon all the time and funding already invested into the current software that is still usable for many years to come.
2. Wholesale Energy Resource Management (WERM) explored training LADWP personnel to upgrade, configure, and maintain the software. However, since the software is proprietary, PCI will not allow LADWP access to modify their software. Consequently, LADWP cannot itself implement required changes without voiding the vendor warranty and hindering support services.

Amending the Agreement is the most desirable option to LADWP. It is in LADWP's best interest to have a continued hosting, software maintenance, and support services of the MBS System from PCI.

This software package is a critical operational tool used on a daily basis to plan and dispatch LADWP's power system resources reliably, economically and in compliance with all environmental regulations and reliability requirements to serve its customers. The software also enables LADWP's system resources to participate in all western energy markets. While LADWP does not depend on these markets for reliability, the net benefit to its ratepayers from such non-participation will be immediately impacted.

Failure to approve this Amendment would directly impact LADWP's ability to reliably operate its power system and result in having to halt all energy trading and withdraw from WEIM participation due to inability to operate within contractual agreement obligations and timelines already in place.

FINANCIAL INFORMATION

The proposed Amendment will extend the term of the Agreement by an additional three-year period with two one-year extension options, for a total of ten years, and increase the Agreement not to exceed amount by \$9,999,887 from \$8,541,860 to \$18,541,747 (budgeted), including 10 percent contingency.

	Original Maximum Expenditure	Requested Amendment No. 1	Requested Amendment No. 2	Amended Maximum Expenditure
Original Agreement Amount	\$4,772,612	\$2,992,715	\$9,090,806	\$16,856,133
Contingency	\$ 190,904	\$ 585,629	\$ 909,081	\$ 1,685,614
Not-to-Exceed Amount	\$4,963,516	\$3,578,344	\$ 9,999,887	\$18,541,747

BACKGROUND

The Western Energy Imbalance Market (WEIM) is a real-time wholesale energy trading market that enables participants anywhere in the western United States to buy and sell energy when needed. Participating utilities use the WEIM to balance supply and demand within their respective service areas in real time by scheduling power deliveries every 15 minutes with five-minute resource dispatching. WEIM's advanced market systems automatically find the lowest-cost energy to serve real-time customer demand across a wide geographic area. Entities participating in the WEIM maintain control over their assets and remain responsible for meeting the North American Electric Reliability Corporation's Balancing Authority requirements while sharing in the benefits the market produces for its participants.

PCI's MBS is used to perform many tasks that are essential to reliable operation of the LADWP power system and required for WEIM participation, including automating LADWP's processes for transactions and interfaces with CAISO WEIM systems. The MBS system is capable of exchanging information with other WEIM related software systems including system load, Variable Energy Resources generation estimates, and other information that affect base schedule optimization.

On May 4, 2010, PCI was awarded Agreement No. 47957 under Resolution No. 010 310 to purchase the off-the-shelf power system planning software to provide unit commitment and economic dispatch modeling and cost analysis of LADWP's generation assets. The PCI software used by LADWP's WERM, located at the Power System's Energy Control Center to model generation, was competitively purchased under Request for Proposal No. 226-09.

On November 1, 2014, CAISO went "live" with its WEIM, together with PacifiCorp East and PacifiCorp West BAAs as the initial market participants. Participation in WEIM provides better reliability and more efficient renewable resource integration for participating WEIM Entities, and the region as a whole, by sharing and economically dispatching a broad array of resources throughout the West. Since 2014, CAISO WEIM has expanded to other western entities, such as NV Energy, Arizona Public Service Company, and Puget Sound Energy. Other entities also have pledged future participation in the WEIM, including Portland General Electric, Idaho Power, Sacramento Municipal Utility District, Balancing Authority of Northern California, and Seattle City Light.

On November 5, 2014, LADWP established a sole source agreement with PCI to provide maintenance, support, as-needed training and consulting services used by LADWP's WERM group to manage wholesale training operations under Agreement No. 47284. The software used to optimize costs needed to be recalibrated in order to provide accurate system costs and energy pricing to the Wholesale Energy Traders for forward marketing. Accurate pricing provides a protection against poor business practices.

On March 21, 2017, Resolution No. 017 190 authorized the execution of the "CAISO EIM Implementation Agreement" LADWP No. BP 17-001 to establish terms and conditions to integrate LADWP electric system into CAISO's real-time market as an entity. The Agreement stipulated payments to the CAISO and scheduled milestones for the required work between LADWP and CAISO for the WEIM implementation. Participation in WEIM was voluntary and within LADWP's sole discretion.

On November 5, 2019, the Board approved Agreement No. 47577 with PCI under Resolution No. 020 075 to provide software, configuration, maintenance, support, and training services for the MBS Systems for a term of three years under Request for Sole Source Proposal No. 90490 because PCI has proprietary knowledge and expertise to provide software, maintenance, support, training, and enhancements to the existing MBS System.

On April 2021, LADWP joined WEIM as a Balancing Authority. On September 14, 2021, Amendment No. 1 was adopted by the Board under Resolution No. 022 021 to extend the term of the Agreement by two years for a total of five years, add scope, and increase the Agreement not-to-exceed amount by \$3,578,344 from \$4,963,516 to \$8,541,860, including 10 percent contingency.

Aside from its operational criticality, the MBS system is LADWP's means of bidding into the WEIM by generating optimal base schedules to communicate LADWP's load and generation information to the WEIM and conforming to any dispatch constraints that must be considered for producing an optimal and reliable market solution. By utilizing the MBS system across a large geographic area, LADWP, like other utilities, will more effectively manage to serve its demand while significantly lowering the cost of delivering power to consumers.

PCI has performed satisfactorily under this Agreement.

In accordance with the Mayor's Executive Directive No. 4, the City Administrative Officer's Report has been requested.

ENVIRONMENTAL DETERMINATION

Determine item is exempt pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15060(c)(3). In accordance with this section, an activity is not subject to CEQA if it does not meet the definition of a project. Section 15378(b)(2)

states that continuing administrative or maintenance activities, such as amendments to existing contracts, do not meet that definition. Therefore, the award of a contract amendment for an EIM Meter Data Management System is not subject to CEQA.

CITY ATTORNEY

The Office of the City Attorney reviewed and approved the Amendment and Resolution as to form and legality.

ATTACHMENTS

- Procurement Summary
- Resolution
- Amendment

PROCUREMENT SUMMARY

1.	Recommended Vendor: Power Costs, Inc. (PCI)
2.	Procurement Type: Amendment
3.	Procurement Details: A. Contract Status: Amendment No. 2 B. Bid Advertisement Date: N/A C. Pre-Bid Conference Date: N/A D. Bid/Proposal Due Date: N/A E. Number of Downloads of Solicitation N/A F. Number of Bids/Proposals Received: N/A G. Protest Received: (Yes/No) N/A
4.	Buyer Assigned: Ramiro A. Puhawan
5.	Contract Administrator: Erick Gallegos
6.	LADWP System/Division: Power System/Fuel and Purchased Power
7.	Contact Person for Item: Erick Gallegos

A. Evaluation Rating Summary of Proposals

Not applicable to this Amendment.

B. Evaluation of Amendment

PCI have not increased their pricing for software and related technical support services, including software updates, upgrades and hosting fees and maintenance services since the inception of the contract in 2019. The average Consumer Price Index (CPI) from 2019 to 2023 has increased an average of 10 percent per year. PCI will increase their pricing based on CPI but at a maximum rate of 7 percent per year for years 7 thru 10. Pricing for additional years 6-10 has been determined to be fair and reasonable based on historical costs, current market trends, and increasing CPIs.

C. Procurement History

Service/Item History – Number of Times Item or Service has been Procured					
Contract/ PO No.	Contractor	Term of Contract	Start Date	Ending Date	Contract Amount
47577	Power Costs Inc.	5 years	11/18/19	11/17/24	\$8,541,860
47573	Power Costs Inc	5 years	11/18/19	11/17/24	\$2,317,089

Vendor Experience – Number of Contracts Vendor had with LADWP During the Past 10 Years					
Contract/ PO No.	Contract Description	Term of Contract	Start Date	Ending Date	Contract Amount
47577	Energy Imbalance Market Merchant Bidding & Scheduling (MBS) System	5 years	11/18/19	11/17/24	\$8,541,860
47573	EIM Meter Data Management System	5 years	11/18/19	11/17/24	\$2,317,089

49488	Enhancement of Generation Economic Modeling Software	1 year	11/26/18	11/25/19	\$ 150,000
47284	Maintenance, Support, Training and Consulting Services for PCI Software	3 years	12/10/14	12/09/17	\$2,134,290

D. Local Business Preference Program

Not applicable to this Amendment.

E. Additional Outreach Efforts Taken

Not applicable to this Amendment.

F. Small Business Enterprises (SBE)/Disabled Veterans Business Enterprises (DVBE)/Minority Business Enterprises (MBE)/Women Business Enterprises (WBE)/Other Business Enterprises (OBE) Participation

Not applicable to this Amendment. There were no subcontracting opportunities identified under this Agreement; however, PCI was encouraged to utilize SBE, DVBE, MBE, and WBE, and other firms where feasible.

Resolution No. _____

WHEREAS, Power Costs Inc, (PCI) was awarded Agreement No. 47577 (Agreement) by the Los Angeles Department of Water and Power (LADWP) Board of Water and Power (Board) on November 18, 2019, to provide software, configuration, hosting, maintenance, support, and training services for the Western Energy Imbalance Market (WEIM) Merchant Bidding and Scheduling Systems (MBS) as a sole-source contract; and

WHEREAS, the Agreement was awarded under Resolution No. 020 075 for a term of three years and an amount not- to-exceed \$4,963,516, including four percent contingency; and

WHEREAS, on September 14, 2021, under Resolution No. 022 021, the Board adopted Amendment No. 1 to the Agreement to extend the Agreement term by two years to November 17, 2024, and increase the not-to-exceed Agreement amount by \$3,578,344 from \$4,963,516 to \$8,541,860, including 10 percent contingency; and

WHEREAS, LADWP has determined that, due to the need for additional software options and continued configuration, hosting, maintenance and technical support services, it is necessary to extend the term by an additional three-year period with two one-year extension options; for a total term of up to ten years; and increase the Agreement not-to-exceed amount by \$9,999,887, from \$8,541,860 to \$18,541,747, including 10 percent contingency; and

WHEREAS, the Agreement term as amended exceeds the total contract time period set by Los Angeles City Ordinance, and in accordance with the City Charter Section 373, City Council approval is required.

NOW, THEREFORE, BE IT RESOLVED that the Amendment No. 2 to the Agreement, approved as to form and legality by the City Attorney, and filed with the Secretary of the Board, is hereby approved.

BE IT FURTHER RESOLVED that pursuant to City Charter Section 1022, the Board finds that it is more feasible to have the work performed by an independent contractor.

BE IT FURTHER RESOLVED that the Chief Accounting Employee of LADWP, upon proper certification, is authorized and directed to draw demands on the Power Revenue Fund, in accordance with the terms of this Amendment to the Agreement and this Resolution.

BE IT FURTHER RESOLVED that the President or Vice President of the Board, or the General Manager, or such person as the General Manager shall designate in writing, and the Secretary, Assistant Secretary, or the Acting Secretary of the Board are hereby authorized and directed to execute said Amendment for and on behalf of LADWP upon approval by the City Council pursuant to City Charter Section 373.

I HEREBY CERTIFY that the foregoing is a full, true, and correct copy of the Resolution adopted by the Board of Water and Power Commissioners of the City of Los Angeles at its meeting held.

Secretary

**AMENDMENT NO. 2 TO AGREEMENT NO. 47577
BETWEEN
LOS ANGELES DEPARTMENT OF WATER AND POWER
AND
POWER COSTS, INC**

THIS AMENDMENT NO. 2 to Agreement No. 47577 is made and entered into by and between the City of Los Angeles, acting by and through the Los Angeles Department of Water and Power, a municipal corporation (hereinafter referred to as LADWP) and Power Costs, Inc. (hereinafter referred to as PCI or "Consultant"), collectively the "Parties"; and

WHEREAS, on November 5, 2019, LADWP Board of Water and Power Commissioners (Board) adopted Agreement No. 47577 with PCI under Resolution No. 020 075 to provide software, configuration, maintenance, support, and training services for the Western Energy Imbalance Market (WEIM) Merchant Bidding and Scheduling Systems (MBS) under a sole-source contract; and

WHEREAS, the Agreement's original term was three years and a not-to-exceed amount of \$4,963,516, including four percent contingency; and

WHEREAS, on September 14, 2021, Amendment No. 1 was adopted by the Board under Resolution No. 022 021 to extend the term of the Agreement by two years for a total of five years, add scope, and increase the Agreement not-to-exceed amount by \$3,578,344 from \$4,963,516 to \$8,541,860, including 10 percent contingency; and

WHEREAS, LADWP has determined that, due to the need for additional software options and continued configuration, hosting, maintenance and technical support services, it is necessary to extend the term by an additional three-year period with two one-year extension options; extending the Agreement from November 18, 2024 to November 17, 2029, for a total term of up to ten years; and increase the Agreement not-to-exceed amount by \$9,999,887, from \$8,541,860 to \$18,541,747 (budgeted), including 10 percent contingency; and

NOW, THEREFORE, BE IT RESOLVED that for good value and consideration including mutual exchange of promises, the Parties agree to amend Agreement No. 47577 as follows:

- 1) Subsection 13 a) Term previously read as:

"The term of this Agreement ("Term") shall commence upon the Effective Date and shall expire five (5) years thereafter, unless earlier terminated as hereinafter provided."

Subsection 13 a) Term is hereby amended to read:

"The term of this Agreement ("Term") shall commence upon the Effective Date

and shall expire eight (8) years thereafter, unless earlier terminated as hereinafter provided. At LADWP's sole option, the term of this Agreement may be extended for up to an additional two years, exercisable in one-year increments, or any portion thereof."

- 2) Exhibit C, Fee Schedule, is replaced in its entirety with Exhibit C, Fee Schedule (Amendment No. 2) attached herein.
- 3) Exhibit H, Statement of Work, Attachment C, Cloud Hosted Requirements, page H44 shall be replaced with the attached Exhibit H, Statement of Work, Attachment C, Cloud Hosted Requirements, page H44 marked Amendment No. 2 to reflect the update on ID 333:

ID	Requirement Description
333	<p>The cloud hosted system shall have the ability to increase/decrease storage needs as required and be able to expand/contract system hardware to meet future demands.</p> <p>Cloud Hosting Compute & Storage Limits The cloud environments supporting MBS and Gas Management systems shall be subject to the compute and storage limit as defined in Attachment D, Hosted Service Storage and Compute Limit.</p>

- 4) Add new Attachment D, Hosted Service Storage and Compute Limit, to Exhibit H, Statement of Work, attached herein.

Except as amended herein, all terms and conditions of Agreement No. 47577 shall remain in full force and effect.

This Amendment No. 2 may be executed in one or more counterparts, and by the parties in separate counterparts, each of which when executed shall be deemed to be an original but all of which taken together shall constitute one and the same agreement. The parties further agree that facsimile signatures or signatures scanned into .pdf (or signatures in another electronic format designated by LADWP) and sent by e-mail shall be deemed original signatures.

This Amendment consists of three (3) pages, Exhibit C (Amendment No. 2), Page H44 of Exhibit H (Amendment No. 2) and Attachment D in Exhibit H (Amendment No. 2).

[Signature Page follows.]

SIGNATURE PAGE

IN WITNESS WHEREOF, the Parties hereto have caused this Amendment No. 2 to Agreement No. 47577 to be executed by their authorized representatives on the date written below.

**DEPARTMENT OF WATER AND POWER
OF THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER
COMMISSIONERS**

By signing below, the signatories for the Department of Water and Power attest that they have no personal, financial, beneficial, or familial interest in this contract.

Date: _____

By: _____

MARTIN L. ADAMS
General Manager and Chief Engineer

And: _____

CHANTE L. MITCHELL
Board Secretary

POWER COSTS, INC

Date: _____

By: _____

FRED N. LEE
President

And: _____

SANDY B. HO
Chief Financial Officer

**Exhibit C
Fee Schedule
(Amendment No. 2)**

Contract No./Title:	47577 / EIM Merchant Bidding and Scheduling System
Firm Name:	Power Costs Inc.
Firm Address:	301 David L. Boren Blvd., Suite 2000, Norman, OK 73072

PAYMENT MILESTONES				
Item No.	Date	Fixed Amount	Percentage	Description
1	Dec 2019	\$10,000	1.61%	Notice to Proceed (NTP) issuance by LADWP
2	Dec 2019	\$10,000	1.61%	Delivery of base functional and technical design documents
3	Jan 2020	\$10,000	1.61%	Existing Production Functionality and EIM OOTB Application Successfully Delivered to Hosted Environment with limited data
4	Feb 2020	\$20,000	3.23%	Approval of Functional, Technical design for OOTB
5	Mar 2020	\$18,000	2.90%	Customization Application Design sign-off
6	Mar 2020	\$18,000	2.90%	Customization Interface Design sign-off
7	Apr 2020	\$10,000	1.61%	Existing Production Functionality and OOTB Successfully Delivered
8	Apr 2020	\$10,000	1.61%	Existing Production Interfaces Complete and Operable
9	May 2020	\$30,000	4.84%	Testing and Training of Existing Production Complete
10	May 2020	\$10,000	1.61%	UAT sign-off of Existing Production Application
11	May 2020	\$10,000	1.61%	Release of existing Functionality to Production
12	Jun 2020	\$72,000	11.61%	Application Custom Development Successfully delivered
13	Mar 2019	\$52,000	8.39%	Interfaces Successfully delivered (non-CAISO)
14	Mar 2019	\$56,000	9.07%	Initial Vendor Training, Pre-FAT orientation and FAT Test Plan Complete
15	Jul 2020	\$46,000	7.42%	FAT Successfully Complete and LADWP Sign-off
16	Jul 2020	\$46,000	7.42%	Deliver User Documents and Training Material
17	Jul 2020	\$20,000	3.23%	Conduct User Training
18	Aug 2020	\$46,000	7.42%	SAT Successfully Complete and LADWP Sign-off

**Exhibit C
Fee Schedule
(Amendment No. 2)**

PAYMENT MILESTONES				
Item No.	Date	Fixed Amount	Percentage	Description
19	Aug 2020	\$56,000	9.03%	Custom Software, CAISO Interfaces and Regression Testing Complete and LADWP Sign-off
20	Sep 2020	\$10,000	1.61%	Successful Connectivity Testing
21	Nov 2020	\$10,000	1.61%	Day in the Life Testing Successfully Completed
22	Jan 2021	\$10,000	1.61%	Market Simulation Testing Successfully Completed
23	Jan 2021	\$10,000	1.61%	User Acceptance Testing Complete
24	Jan 2021	\$10,000	1.61%	Performance Testing
25	Mar 2021	\$10,000	1.61%	Parallel Operations Successfully Completed and Go-Live Ready
26	Apr 2021	\$10,000	1.61%	Go Live
TOTAL		\$620,000	100.00%	

OTHER PERPETUAL LICENSE, HOSTING, AND ANNUAL MAINTENANCE & SUPPORT FEES						
Item Description	One-Time	Year 1	Year 2	Year 3	Year 4	Year 5
Perpetual License Fee (payable upon deployment of functioning OOTB application with limited data)	\$460,000					
Annual Hosting Fee*	n/a	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000
Annual Software Maintenance & 7x24 Support* (payable upon successful completion of SAT)	n/a	\$573,834	\$585,311	\$597,017	\$608,957	\$621,136
Deal Capture Annual Support Fee*	n/a	\$50,000	\$50,000	\$50,000	\$50,000	\$51,000
DAME/eDAM Annual Maintenance Support Fee*, Not to Exceed	n/a	\$7,500	\$7,500	\$7,500	\$7,500	\$7,650
RC Services Annual 7x24 Support Fee*	n/a	\$2,500	\$2,500	\$2,500	\$2,500	\$2,550
LMP Forecasting Tool Annual Support Fee*	n/a	\$7,500	\$7,500	\$7,500	\$7,500	\$7,650

**Exhibit C
Fee Schedule
(Amendment No. 2)**

Outage Management Annual Hosting Fee*	n/a	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
Outage Management Annual Support Fee*	n/a	\$63,750	\$63,750	\$63,750	\$63,750	\$65,025
Subtotal	\$460,000	\$825,084	\$836,561	\$848,267	\$860,207	\$875,011
TOTAL	\$4,705,130					

* NOTE: Annual Hosting, Maintenance, and Support prorated if less than a year.

OTHER HOSTING FEES CONTRACT EXTENSION			
Item Description	One-Time	Year 4	Year 5
Deal Capture Hosted Fee*	n/a	\$32,000	\$32,000
DAME/eDAM Hosted Fee*, Not to Exceed	n/a	\$4,800	\$4,800
RC Services Annual 7x24 Hosted Fee*	n/a	\$1,600	\$1,600
LMP Forecasting Tool Annual Hosted Fee*	n/a	\$4,800	\$4,800
Subtotal		\$43,200	\$43,200
TOTAL		\$86,400	

* NOTE: Annual Hosting, Maintenance, and Support prorated if less than a year.

* NOTE: Annual Hosting, Maintenance, and Support prorated if less than a year.

OTHER PERPETUAL LICENSE, HOSTING, AND ANNUAL MAINTENANCE & SUPPORT FEES GAS MANAGEMENT (Not to be Commenced Without LADWP Written Approval)						
Item Description	One-Time	Year 1	Year 2	Year 3	Year 4	Year 5
Perpetual License Fee (payable upon deployment of functioning OOTB application with limited data*)	\$365,000					
Annual Software Maintenance & 7x24 Support* (payable upon successful completion of SAT)*	n/a	n/a	\$91,250	\$93,075	\$94,937	\$96,835
Annual Hosting Fee *	n/a	n/a	\$40,000	\$40,000	\$40,000	\$40,000
Subtotal	\$365,000	n/a	\$131,250	\$133,075	\$134,937	\$136,835
TOTAL	\$901,097					

**Exhibit C
Fee Schedule
(Amendment No. 2)**

OTHER MILESTONES (Years 6-10) (Not to be Commenced Without LADWP's Written Approval)					
Item No.	Description	Date	Perpetual License	Deployment	Base Training
44	Deal Capture Physical and Financial Trades	TBD	\$296,000	\$575,000	\$15,000
45	DAME impacts to MRTU/DAME impacts to EIM/eDam, Not to Exceed Include Extensions will be implemented with EDAM	TBD	n/a	\$137,500	\$5,000
46	RC Services (SPP-WRAP)	TBD	\$200,000	\$200,000	\$5,000
47	EDAM Upgrade Module	TBD	\$30,000	\$273,775	n/a
48	Outage Management (Generation & Transmission)	TBD	\$300,000	\$233,700	\$20,000
49	Transmission Modeling Support & Database Clean up	TBD	n/a	\$141,000	n/a
Subtotal			\$826,000	\$1,560,975	\$45,000
TOTAL			\$2,431,975		

OTHER PERPETUAL LICENSE, HOSTING, AND ANNUAL MAINTENANCE & SUPPORT FEES (Year 6-10) (Not to be Commenced Without LADWP's Written Approval)						
Item Description	One-Time	Year 6	Year 7	Year 8	Year 9	Year 10
Perpetual License Fee (payable upon deployment of functioning OOTB application with limited data)						
MBS Annual Hosting Fee*	n/a	\$85,600	\$91,592	\$98,003	\$104,864	\$112,204
MBS Annual Software Maintenance & 24x7 Support & Managed Services *	n/a	\$664,616	\$711,139	\$760,919	\$814,183	\$871,176
Gas Management Annual Software Maintenance & 24x7 Support & Managed Services *	n/a	\$154,973	\$165,821	\$177,429	\$189,849	\$203,138

**Exhibit C
Fee Schedule
(Amendment No. 2)**

Gas Management Hosting Fees	n/a	\$42,800	\$45,796	\$49,002	\$52,432	\$56,102
Deal Capture Annual Software Maintenance & 24x7 Support & Managed Services*	n/a	\$74,000	\$79,180	\$84,723	\$90,653	\$96,999
Deal Capture Annual Hosting Fee*	n/a	\$36,000	\$38,520	\$ 41,216	\$44,102	\$47,189
DAME Annual Software Maintenance & 24x7 Support & Managed Services*	n/a	\$15,000	\$16,050	\$17,174	\$18,376	\$19,662
DAME Annual Hosting	n/a	\$9,000	\$9,630	\$10,304	\$11,025	\$11,797
EDAM Annual Software Maintenance & 24X7 Support & Managed Services*	n/a	\$30,000	\$32,100	\$34,347	\$36,751	\$39,324
EDAM Annual Hosting Fee	n/a	\$4,800	\$5,136	\$5,496	\$5,880	\$6,292
RC Services (SPP-WRAP) Annual Software Maintenance & 24x7 Support & Managed Services*	n/a	\$50,000	\$53,500	\$57,245	\$61,252	\$65,540
RC Services (SPP-WRAP) Annual Hosting	n/a	\$18,000	\$19,260	\$20,608	\$22,051	\$23,594
AI/ML Forecasting Tool Annual Support Fee*	\$47,000	\$45,000	\$48,150	\$51,521	\$55,127	\$58,986
Outage Management Generation & Transmission Annual Software Maintenance & 24x7 Support & Managed Services*	n/a	\$75,000	\$80,250	\$85,868	\$91,878	\$98,310
Outage Management Generation & Transmission Annual Hosting Fee*	n/a	\$36,000	\$38,520	\$41,216	\$44,102	\$47,189
Subtotal	\$47,000	\$1,340,789	\$1,434,644	\$1,535,071	\$1,642,525	\$1,757,502
TOTAL	\$7,757,531					

* NOTE: Annual Hosting, Maintenance, and Support prorated if less than a year. Rate in the table above are not-to-exceed values and shall be adjusted based on the Consumer Price Index (CPI) range per note 11 below.

**Exhibit C
Fee Schedule
(Amendment No. 2)**

TRAVEL		
Description	Date	Not to Exceed
Travel Fees, reimbursable as incurred, in accordance with Exhibit D, Allowable Travel Expenses	TBD	\$104,000

DIRECT LABOR	
Labor Classification	Hourly Rate
Project Manager / Technical Lead / Developer / Tester / Architect*	\$235

* Hourly rate will be adjusted on an annual bases to reflect CPI (Consumer Price Index) increases.

Rates for incremental environment usage for Attachment D, Hosted Service Storage and Compute Limit from Exhibit H	
Usage Type	Rates
RDS Base Storage	\$0.4603 per GB per availability zone per month
File Share Storage	\$0.834 per GB per availability zone per month
RDS Compute (db.m5.large single AZ)	\$225.16 per 2 vCPUs & 8 GB RAM per availability zone per month
Fees for Application Compute (r5.xlarge)	\$595.11 per 4 vCPUs & 32 GB RAM per month
Fees for Application Compute (t3.2xlarge)	\$653.04 per 8 vCPUs & 32 GB RAM per month
Fees for Application Compute (t3.xlarge)	\$337.03 per 4 vCPUs & 16 GB RAM per month
Fees for Application Compute (t3.large)	\$167.17 per 2 vCPUs & 8 GB RAM per month
Fees for Compute Processes for GenTrader Grid Servers (C5 Class)	\$953.26 per 4 CPU cores per month
Fees for Compute Processes for GenTrader Grid Servers (T2 Class)	\$319.91 per 4 CPU cores per month
Fees for QlikView Compute (r5.large)	\$308.06 per 2 vCPUs & 16 GB RAM per month
Fees for QlikView Compute (r5.xlarge)	\$595.11 per 4 vCPUs & 32 GB RAM per month
Fees for QlikView Compute (r5.2xlarge)	\$1169.20 per 8 vCPUs & 64 GB RAM per month
Fees for QlikView Compute (r5.4xlarge)	\$2317.38 per 16 vCPUs & 128 GB RAM per month
Fees for QlikView Compute (r5.8xlarge)	\$3981.73 per 32 vCPUs & 256 GB RAM per month
Thinfinity Remote Desktop	\$120 per user license per year

Notes:

1. PCI license fees for PCI Outage Management reflect perpetual license fees for deploying PCI Outage Management (Enterprise Out of the Box Version) to manage outages for both generation and transmission equipment.
2. PCI license fees do not include cost of 3rd Party Software (Oracle Database, Oracle WebLogic).
3. PCI perpetual license fees will be invoiced when PCI will deploy PCI Outage Management on AWS test servers with limited data.
4. PCI annual maintenance fees will be invoiced at the completion of SAT.
5. PCI base deployment reflect PCI engineering hours to configure and deploy PCI OM on AWS

**Exhibit C
Fee Schedule
(Amendment No. 2)**

- hosted servers.
6. PCI to support Regression Testing, UAT, Performance Testing, DILF, Market Trial, Parallel Operations, and Go Live Support will cover PCI consulting services to support the internal LADWP tests and EIM market trials.
 7. PCI training reflects 4 train the trainer courses for outage schedulers, plant people, and BA personnel
 8. The PCI annual hosted fee will be invoiced when PCI OM will be installed on AWS hosted servers with limited data.
 9. Base Market-Trial & Go-Live Support will cover PCI consulting services to support both internal LADWP tests and EIM market trials for the PCI Optimization Suite.
 10. PCI will invoice perpetual license fees for PCI MBS after delivery of PCI MBS system (OOTB) and PCIEA system (OOTB) with limited data on PCI hosted servers.
 11. The dollar amounts listed in the table for Year 6 through Year 10 represent the maximum payout and shall be modified in accordance with the Consumer Price Index (CPI) as described below.
 - PCI shall be subject to an adjustment based on the change in the Consumer Price Index (CPI). This fee will be a minimum of 3% and a maximum of 7%, with the exact percentage of escalation being contingent on where the CPI falls within this range.
 - Example: If the CPI changes by shows 1.5%, PCI will receive an adjustment of 3% for that year. If the CPI changes by 8.5%, then PCI will receive an adjustment of 7% for that year. If the CPI print shows 3.7%, then PCI will receive an adjustment of 3.7% for that year. LADWP will use CPI-W for the month of August to be used for the following year with the series title being 'All items in Los Angeles-Long Beach-Anaheim, CA and the Area being Los Angeles-Long Beach, Anaheim.' Reference link.
 12. PCI offers to provide a complimentary professional services package of up to 250 hours. During the term of this agreement, LADWP can utilize it for consulting services, system enhancements, and training. The total worth of this non-billable professional services package is \$58,750.
 13. Annual support fees will be invoiced 30 days prior to the support start date and will become due net 30 days after the invoice date.

END OF FEE SCHEDULE

EXHIBIT H

Statement of Work

ATTACHMENT C

CLOUD HOSTED REQUIREMENTS

NOTE: The below grids are excerpts from a master list of EIM System Hosted Requirements. These are internal ID references and are maintained for LADWP purposes. For the system, the requirement IDs numbering will not be necessarily useful to the Contractor beyond their uniqueness. Non-sequential lists are not a mistake.

C. CLOUD HOSTED REQUIREMENTS

ID Number	Requirements/Description
333	<p>The cloud hosted system shall have the ability to increase/decrease storage needs as required and be able to expand/contract system hardware to meet future demands.</p> <p>Cloud Hosting Compute & Storage Limits The cloud environments supporting MBS and Gas Management systems shall be subject to the compute and storage limit as defined in Attachment D.</p>
346	<p>For technical security, the Contractor shall implement the necessary communications security protocols including firewalls, antivirus software, and encryption. Contractor shall ensure all communication and access is both authenticated and authorized. Communication for administrative tasks shall be secured using VPN. For data security, Secure Sockets Layer (SSL) shall be used as standard and unsecured HTML shall be used on an exception basis only. Contractor shall whitelist LADWP's source address.</p>
411	<p>Contractor shall keep LADWP's application and modules within 1 version of the most current version used by any other Contractor client, unless a variance is requested by LADWP.</p>
679	<p>LADWP shall have the right to audit processes, procedures and data centers on an annual basis to ensure compliance with security and architecture requirements. Contractor may substitute this requirement by providing audit documentation from a mutually agreed to 3rd party with mutually agreed to audit parameters.</p>
680	<p>Contractor shall not claim ownership rights of any data sourced from LADWP staff, contractors or systems. In addition, Contractor shall not claim ownership of any 3rd party data (including from CAISO) gained through interfaces set up for LADWP or using LADWP credentials.</p>

EXHIBIT H
Statement of Work

Attachment D
Hosted Service Storage and Compute Limit

1. **Base Storage Threshold.** The Hosting Services shall include the allocation of database storage described herein (the "**Base Storage Threshold**"). PCI shall notify an authorized Client Representative in writing when the Client has reached about eighty-five percent (85%) of the Client's then-current Base Storage Threshold. If PCI does not receive Client's written request to not increase the Base Storage Threshold within five (5) business days of its receipt of the notice, to support the continuity of Client's Hosted Services operations, when the storage reaches 90% of the Base Storage Threshold, additional storage will be added and Client will be charged for the incremental storage at the rates described herein. Storage is incremented in 500 GB units and billed annually beginning in the year in which the increment is added.
2. **File Share Storage.** The Hosting Services shall include the allocation of File Share Storage described herein (the "**File Share Storage**"). PCI shall notify an authorized Client Representative in writing when Client has reached about ninety percent (90%) of Client's then-current File Share Storage setting. If PCI does not receive Client's written request to not increase the File Share Storage threshold within five (5) business days of its receipt of the notice, to support the continuity of Client's Hosted Services operations, when the storage reaches 95% of the File Share Storage threshold, additional storage will be added and Client will be charged for the incremental storage at the rates described herein. Storage is incremented in 500 GB units and billed annually beginning in the year in which the increment is added.
3. **Application Compute.** The Hosting Services shall include the allocation of Application Compute Servers described herein (the "**Application Compute**"). Application compute servers are used to run clients' workflows using PCI products in PCI GSMS & PCI Kube Platforms. The vCPUs and RAM allocated are used by all implemented workflows. The client can request additional Application Compute by submitting a request through the issue tracking system. PCI shall complete the request and bill the Client at the listed rate. The minimum increment size is 2vCPUs with 8 GB of RAM. The default duration is yearly.
4. **Grid Compute.** The Hosting Services shall include the allocation of Grid Compute described herein (the "**Grid Compute**"). GenTrader Grid Compute services are allocated to provide a maximum number of parallel GenTrader Cases. A Case is executed as a process. The maximum number of CPU processes is shared across all studies. The client can request additional compute by submitting a request through the issue tracking system. PCI shall complete the request and bill the Client at the listed rate. The minimum increment size is four units up to an absolute maximum of 240 units in four-unit increments. The default duration is yearly.

EXHIBIT H

Statement of Work

- **PCI GSMS (LADWP-MT)**
 - **Production Environment**
 - "GSMS & GT" RDS Base Storage Threshold 1,000 GB
 - RDS Compute (Multiple Availability Zone): 4 vCPUs & 16 GB of RAM
 - File Share Storage 2,000 GB
 - QlikView Server with 32 GB of RAM
 - Application Compute (Application Servers):
 - Task Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
 - User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
 - GenTrader Compute (Grid Servers) Maximum Number of CPUs 24 of T2 (burstable)
 - **Dev Environment**
 - "GSMS & GT" RDS Base Storage Threshold 1,000 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - QlikView Server with 32 GB of RAM
 - Application Compute (Application Servers):
 - Task/User Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
 - GenTrader Compute (Grid Servers) Maximum Number of CPUs 4 of T2 (burstable)
 - **Test Environment**
 - "GSMS & GT" RDS Base Storage Threshold 1,000 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 1,000 GB
 - QlikView Server with 32 GB of RAM
 - Application Compute (Application Servers):
 - Task Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
 - User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
 - GenTrader Compute (Grid Servers) Maximum Number of CPUs 8 of T2 (burstable)
- **PCI GSMS (LADWP-TO)**
 - **Production Environment**
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Multiple Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - Application Compute (Application Servers):
 - Task Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
 - User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
 - **Dev Environment**
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB

EXHIBIT H

Statement of Work

- Application Compute (Application Servers):
 - Task/User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
- Test Environment
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - Application Compute (Application Servers):
 - Task Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
 - User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
- PCI GSMS (LADWP-ET)
 - Production Environment
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Multiple Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - Application Compute (Application Servers):
 - Task/User Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
 - Dev Environment
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - Application Compute (Application Servers):
 - Task/User Servers: 2 servers, with 2 vCPUs & 8 GB of RAM each
 - Test Environment
 - "GSMS" RDS Base Storage Threshold 500 GB
 - RDS Compute (Single Availability Zone): 2 vCPUs & 8 GB of RAM
 - File Share Storage 500 GB
 - Application Compute (Application Servers):
 - Task/User Servers: 2 servers, with 4 vCPUs & 16 GB of RAM each
- Data Transfer Fees: The base pricing includes data transfer fees to support normal workflows. The data transfers should not exceed \$100 per month for each of the 3 eco-systems (LADWP-MT, LADWP-TO, LADWP-ET). Any excess will be billed at cost.
- Client will have PCI GSMS: Production, Dev, and Test environments.
- QlikView: Existing QlikView licenses will be in use and no new ones will be purchased.

Rates for incremental environment usage are listed in Exhibit C, Fee Schedule.

End of Attachment D

END OF STATEMENT OF WORK