Los Angeles Department of Water & Power

BOARD LETTER APPROVAL

RESOLUTION NO. _____

DAVID H. WRIGHT
Chief Operating Officer

MARCIE L. EDWARDS
General Manager

DATE: May 26, 2016

SUBJECT: Lease Agreement Between Los Angeles Department of Water and Power and CoreSite Real Estate, L.L.C. to Lease Data Center Colocation Space in Los Angeles, California

SUMMARY

This Lease Agreement (Agreement) is to relocate Los Angeles Department of Water and Power's (LADWP's) data center from its antiquated LADWP-owned space to space leased from CoreSite Real Estate, L.L.C. (CoreSite). LADWP's data center is the central technological engine that allows us to serve our customers. The relocation will significantly increase reliability for LADWP's business applications including the Customer Information System (CIS), e-mail, and the ladwp.com website.

The proposed relocation is the result of an assessment by International Business Machines, Inc. (IBM) and recent system outages caused by problems in the current data center space. The IBM recommendation resulted in assessing multiple vacant facilities in the downtown Los Angeles area, the T5 colocation facility currently utilized by Los Angeles World Airports, modular data center containers, constructing a new data center, and the CoreSite colocation facility.

In establishing qualifications for a new data center, LADWP considered security, environmental responsibility, location, and cost effectiveness. While many facilities checked some boxes, the CoreSite colocation facility was the only facility to adequately meet all requirements including ample space for LADWP equipment, meeting power usage effectiveness energy efficiency requirements (double the efficiency of other locations), being geographically desirable (LADWP staff response time), located in LADWP service territory, and having existing LADWP fiber connectivity to avoid a costly buildout.

The proposed Agreement is for a term of 10 years with an additional five-year option for an amount not to exceed $58,000,000 (budgeted) including power usage. The net average annual cost less power usage (paid to LADWP) is $2,600,000.

City Council approval is required.

RECOMMENDATION

It is requested that the Board of Water and Power Commissioners adopt the attached Resolution recommending City Council's approval of the Agreement as required in Charter Section 606.

ALTERNATIVES CONSIDERED

The following alternatives were considered:

- **Remain in the current facility and retrofit the space**
  - Cost **$47M** to retrofit to current standards and operate for 15 years.
  - Would carry significantly more risk of construction problems (retrofitting existing historic building).
  - Would not address reliability concerns (Data center downtime costs average company of our size about $ 8,000 a minute).
  - Would fail to address fundamental security requirements.
  - Would require costly future improvements and maintenance.
  - Would continue to tie up office space that could be better used.
- **Build our own secured Data Center**
  - Cost an estimated **$83M** to build secure and operate over 15 years.
  - Take two plus years to permit and build.
- **Relocate to the colocation facility used by LAWA**
  - This location is in El Segundo and would result in inefficient use of LADWP data center staff time, commuting for operations and maintenance. It also poses potential staff access delays in case of emergency situations.
  - The legacy application mix that LADWP runs is less fault tolerant than more current solutions. This often requires data center staff to physically operate reboot, reset equipment to resolve issues. Having a location more than 10-15 minutes from staff would potentially result in extended outages.
  - This location would also require LADWP to purchase electric service from Southern California Edison (SCE).
  - Most are mixed use spaces with general office space, which increases security concerns.
- **Relocate to other colocation facilities in Los Angeles**
  - Other colocation facilities do not provide the efficiencies provided by CoreSite (Free Air Cooling and Contained Hot Aisle with Convection Exhaust).
  - Some locations did not have adequate available space for LADWP needs at this time.
- **Build a modular data center on LADWP property**
  - Cost an estimated at **$70M** to build, secure, and operate over 15 years.
  - Modular solution has some advantages including being slightly more efficient.
  - Preferred LADWP site to locate this type of data center is an area currently being used for major reliability infrastructure projects and has environmental remediation issues due to an underground storage tank.
  - Other similar locations considered by LADWP would take an estimated two years to site and develop.
  - Does not provide the physical security of a professional colocation site.

KEY DEFINITIONS

Colocation Facility provides space, power capacity, data communications, and cooling infrastructure customized to enable multiple companies to house and operate their data center equipment. A colocation facility operates 24/7, 365 days a year with operating support, back-up systems, and robust security protocols to ensure reliable continuous operation.

Free cooling is an economic method of using low external air temperatures in conjunction with traditional air conditioning in green data centers. Data center equipment can raise temperatures up to 120 degrees. Instead of using air conditioning to lower that temperature to 72 degrees, the system brings in outside air and thus the air conditioning only needs to cool the difference between the temperature of the outside air and 72 degrees. In a climate like Los Angeles, this could mean energy savings upwards of 90 percent.

Contained Hot Aisle With Convection Exhaust is a system that seals the exhausts of server racks in a contained aisle that then chimneys the hot air naturally to the outside. Efficiency is significantly increased because the hot air produced by the equipment does not have to be cooled as it is not being resupplied to the room.

Power usage effectiveness (**PUE**) is a measure of how efficiently a computer data center uses energy; specifically, how much energy is used by the computing equipment in contrast to needs of the rest of the building. For example, A PUE of 3 means for every 1 unit of power used for the computer equipment 2 units are used for the overhead of the facility. A PUE of 1.2 means for every 1 unit used for the computer equipment .2 is used for the overhead of the facility. A PUE of 1.2 is considered highly efficient.

FINANCIAL INFORMATION

The estimated expenditure of $58,000,000 is as follows:

Non Recurring Costs	**Amount**
Suite Build-out (install racks, power circuits, ladder racks and fiber connections)	$111,000
Recurring Costs	
Monthly Rent 700 Kilowatt (kW) @ $185/kW (increases 3%/year)	$28,903,000
Monthly Non-Fixed expenses for 15 years (Taxes and Insurance estimated at historic 2% average)	$2,034,000
Monthly Fixed expenses for 15 years (Facilities, Operations, etc. greater of 3% or CPI percent yearly – Estimated at 3%)	$5,156,000
Power (billed at cost as charged to CoreSite by LADWP – Estimated increases based on IRP)	$18,712,000
Contingency – 10% of the variable costs (Non-Fixed, Fixed and Power)	$2,600,000
CONTRACT COST	**$57,516,000**
Less LADWP billing to CoreSite for power usage	($18,712,000)
NET CONTRACT COST	**$38,804,000**

The proposed Agreement is for a term of 10 years with an additional five-year option for an amount not to exceed $58,000,000 (budgeted) including power usage. The operating requirements prevent LADWP from having a dedicated meter. An estimated $18,712,000 of the total will be for power, which will be billed at cost by CoreSite. The $18,712,000 will be recovered when CoreSite pays their LADWP bill for power. The net cost of the proposed Agreement is approximately $39,000,000 over the original term and the option for an average annual net cost of $2,600,000.

Funding for the proposed Agreement is included in the budget.

BACKGROUND

The current data center is located in a multi-purpose facility with infrastructure that is antiquated for a data center. The data center has suffered several significant outages over the last five years as a result of facility infrastructure issues. The data center facilities assessment (Assessment) by IBM reviewed fire protection, mechanical, electrical, security, environmental monitoring, and single points of failure. The evaluation cited:

- A significant number of man-made and natural hazards in the surrounding area.
- Capital facility improvements estimated in excess of $10,000,000 for 45 electrical, mechanical, architectural, fire protection, and security items (likely higher in 2016 dollars).

In establishing qualifications for a new data center, LADWP considered security, environmental responsibility, location, and cost effectiveness. The downtown LA facilities could not meet our energy efficiency standards and required costly full infrastructure build-outs. The T5 colocation facility is in Southern California Edison (SCE) territory and the distance to the location would prevent a rapid response in case of emergency. The modular data center would require a lengthy and costly implementation deployment and would not provide the physical security protocols currently provided by professional data center co-locations.

CoreSite provides a turnkey move-in ready data center environment with 99.9999 percent uptime and a 100 percent uptime Service Level Agreement. A facility dedicated to data center operations will ensure that critical applications such as CIS, WEB, eRSP, etc. will suffer fewer outages and better serve our customers.

CoreSite has proposed a data center solution specifically to LADWP requirements leveraging state of the art technologies to provide a highly efficient data center. Compared to the existing data center space, the proposed data center solution will save $1,400,000 in energy costs and reduce CO^2 emissions by over 3,000 tons per year, equivalent to removing over 650 cars from the road.

CoreSite will provide the following:

- A 1,334 square foot data center that can house 57 standard rack bays (the current data center is over 3,800 square feet).

- 700 kW of power for computer equipment, network switches, and storage. **Hot aisle containment** and **free air cooling** to produce unparalleled efficiencies (current data center cannot use free air cooling and does not have contained hot aisles), which channels the heat from equipment and uses outside air to cool the space. We project a **Power Usage Effectiveness (PUE)** rating of 1.2, which is double the efficiency of other locations considered.
- A 489-square foot storage and assembly area.
- Security and badge access to all areas on a 24/7 basis.

Per Charter Section 606, LA City Council approval is required when the Board approves a lease with a term greater than five years. This Agreement is for 10 years with a five-year extension option; therefore LA City Council approval is required. The City Administrative Officer report dated February 1, 2016, is attached.

ENVIRONMENTAL DETERMINATION

In accordance with the California Environmental Quality Act (CEQA), it has been determined that entering into an Agreement at an existing structure for the relocation of the LADWP data center is categorically exempt pursuant to Section 15301 of the CEQA Guidelines. Section 15301 covers Class 1 exemptions, which includes the leasing of an existing public or private structure under the condition that the lease will involve negligible or no expansion of use beyond that existing at the time of the lead agency's determination.

CITY ATTORNEY

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

ATTACHMENTS

- Procurement Summary
- Resolution
- Agreement
- CAO Report