**Statement BM Construction Program Statement**

LADWP’s Power Integrated Resource Plan (IRP) identifies the goals of maintaining high reliability and exercising environmental stewardship, while keeping rates competitive. LADWP recognizes that it must modernize many generating plants to comply with environmental regulations, improve efficiency, better integrate renewable resources, and provide for transmission import capability.

LADWP owns and operates three coastal natural gas-fired power plants that are critical to its operations: 1)Haynes Generating Station (Haynes); 2)Harbor Generating Station (Harbor); and 3) Scattergood Generating Station (Scattergood). These plants were built during the 1940s through the 1970s. Harbor, was modernized in the 1990s, resulting in increased efficiency and reliability while reducing emissions and maintenance costs. Once-Through Cooling (OTC) regulations affect LADWP’s three coastal generating stations – Scattergood, Haynes, and Harbor. To comply with OTC regulations, and keep critical in-basin capacity on-line, LADWP has chosen to repower all generating stations which utilize OTC with new units that do not utilize OTC. The modernization of the remaining generation stations is a long-term program targeted for completion by 2029 as shown in the Figure 1 below.



**Figure1. Timeline for OTC compliance**

During the FY2014-15 test period (July 1, 2014 through June 30, 2015), LADWP was engaged in performing analysis to quantify Scattergood repowering performance and the actual repowering of Scattergood, which was completed and placed in service in December 2015. Summaries of project descriptions and supporting assumptions relating to the analysis performed and the repowering construction can be found under the project descriptions for Jobs B2176 and O1195, respectively, which are attached below.

Additionally, all of LADWP’s in-basin thermal plants (namely, Scattergood, Haynes, Harbor, and Valley Generating Stations) have to comply with various federal, state, and local regulations ranging from emission control and reductions, pollutant discharge elimination, reduction of adverse environmental impact as a result of impingement and entrainment, storm water collection, potable water conservation, cooling system flow and velocity reduction, and safe abatement and disposal of hazardous material and waste. During the FY2014-15 test period, LADWP completed various projects to comply with these requirements. Summaries of project descriptions and supporting assumptions pertaining to these projects can be found under the project descriptions for Jobs B2171, B2176, B2229, O1272, O1333, O1399, O9778, and 09790, attached below. The inclusion in rate base of Production construction work in progress (CWIP) balances during the FY2014-15 test period associated with the following projects is consistent with FERC’s regulations authorizing jurisdictional utilities to include 100% of CWIP in rate base for pollution control and fuel conversion CWIP. *See* 18 C.F.R. § 35.25.

**Job B2171 – BM Statement**

In 2012, in order to ensure compliance with the regulatory requirements of the South Coast Air Quality Management District’s (SCAQMD) Facility Permit to Operate, the Los Angeles Department of Water and Power (LADWP) tested the selective catalytic reduction (SCR) catalysts in Scattergood Generating Station (SGS) Units 1 and 2 to determine the remaining life in the SCR catalyst’s ability to reduce nitrogen oxides (NOx) emissions. To continue to meet the SCAQMD NOx permit restrictions, the test results required replacement of SCR catalysts in Units 1 and 2 in 2016 and 2014, respectively. However, additional analysis showed the planned derating of Unit 1 to a gross maximum 121 MW of generating capacity by December 31, 2015 would enable Unit 1 to continue operation on the existing SCR catalyst through the end of 2020 when the unit is scheduled to be repowered. In light of this, LADWP decided to maintain the existing SCR catalyst in Unit 1. Furthermore, LADWP considered the following three options for future action for the SCR catalysts in SGS Unit 2:

1. A full replacement of all SCR catalyst during Fiscal Year 2014/2015.
2. Replacement of the SCR catalyst inlet layer during Fiscal Year 2014/2015.
3. Maintain the existing catalyst with no associated cost.

In FY2014/2015, LADWP exercised Option 2 and replaced only the inlet layer of SCR catalyst in Unit 2. This option resulted in a cost savings of 28 percent in comparison to a full SCR catalyst replacement. Assuming unit operation and SCR catalyst deactivation remain relatively constant, replacement of the inlet layer of SCR would minimize cost and extend the life of the SCR catalyst to approximately 2020, the year Unit 2 is scheduled to be repowered.

**Job B2176 – Statement BM**

As part of the Scattergood Generating Station (SGS) Unit 3 Repowering Project, Units 4 through 7 replaced Unit 3. For reliable and safe operation of the newly repowered units, a high-fidelity, full-scope Simulator software was required for operator and plant personnel training. The Simulator completely and accurately simulates all plant systems, process startups, shutdowns, load changes, and normal and faulted operations for adequate training. During the FY2014/2015 period, the Simulator software was undergoing development concurrently with the design and construction of SGS Units 4 through 7.

**Job B2229 – Statement BM**

The Continuous Emissions Monitoring System (CEMS) is a control system used to continuously collect, record, and report emissions data required for the Los Angeles Department of Water and Power’s (LADWP’s) thermal generating stations to comply with mandatory federal, state, and local emissions regulations.

Proper implementation and maintenance of CEMS is vital for the reliable operation of the generating stations’ units and compliance with regulatory requirements.

CEMS consists of two major sub-systems, which include the Sample Gas System and the Data Acquisition and Handling System (DAHS). The Sample Gas System is used for the sample gas transportation, conditioning, and analysis. The DAHS is hardware and application software integrated together to control the CEMS process as well as to collect, store, and report CEMS data.

LADWP’s CEMS Sample Gas Systems were utilizing older model analyzers for measurement of Nitrogen Oxides (NOx) and Carbon Monoxide (CO). As the availability and performance of these analyzers are crucial for regulatory compliance of the generating stations’ units, upgrades of the analyzers to the latest manufacturer-supported models were required.

LADWP’s CEMS DAHS hardware and software are obsolete and will be upgraded to the latest systems. To maintain security, availability and compliance of the CEMS, upgrades of the DAHS hardware and software are required.

During the Fiscal year 2014/2015 period, the contract was advertised and awarded to procure new analyzer hardware and service support.

**Job 01195 Statement BM**

During the FY2014-15 test period, LADWP was engaged in the repowering of Scattergood and the project was completed and went online in December 2015.

The units to be replaced at Scattergood Generating Station are between 45 and 54 years old, and are among the oldest remaining units in LADWP’s generation fleet. LADWP’s local basin transmission system was never intended to be reliably operated without generation from these plants. By virtue of their location within the basin transmission system, Scattergood generation ensures that loading on basin transmission lines remain within the circuits’ ratings, and system voltage remains within acceptable limits. Minimizing outages at these locations is therefore especially important. Variable-energy resources, such as solar or wind power, can augment existing in-basin gas-fired generation, but the variable resources cannot replace the role local gas-fired generation plays in transmission reliability.

In September 2013 LADWP broke ground on the Scattergood Repowering Project (Project) which will be the first of two major repowering phases at Scattergood. The Project is to comply with the South Coast Air Quality Management District Settlement Agreement to complete the repowering of Unit 3 by December 31, 2015 and the California State Water Resources Board once–through cooling (OTC) mandate by the removal of Unit 3 OTC. The new units and the rapid start feature increase the reliability of the electrical power generation system and integrate well with the intermittent renewable power resources. Because the new units are more efficient, they consume less gas, which contributes to a reduction in greenhouse gas (GHG) production, thereby providing better pollution control. The alternatives would be to shut down Unit 3, buy power at a higher cost and risk disruption of electrical service or continue to operate Unit 3 and accept financial penalties by SCAQMD and potentially the State Water Resources Board.

Scattergood Unit 3 Repowering is part of the OTC program but was originally required per a Settlement Agreement with the South Coast Air Quality Management District (SCAQMD) (latest revision September 15, 2011).

The new repowered units will be substantially cleaner, and more reliable, efficient, and community-friendly than the units they are replacing.

**Job O1272 – BM Statement**

In order ensure regulatory compliance with the National Pollutant Discharge Elimination System (NPDES) permits, the Los Angeles Department of Water and Power (LADWP) must also comply with the Clean Water Act Section 316(b) (Rule 316(b)) at its three coastal electric generating facilities located within the Los Angeles Basin, which are Haynes, Harbor, and Scattergood Generating Stations.

Rule 316(b) for existing facilities requires that the location, design, construction, and capacity of a cooling water intake structure reflect the "best technology available" for minimizing adverse environmental impact as a result of impingement and entrainment. On August 15, 2014, Rule 316(b) was published in the Federal Register and became effective on October 14, 2014. Rule 316(b) requires supporting information to be submitted with the NPDES permit application submittal. If the NPDES permit expires prior to 45 months after effective date of Rule 316(b), the Director (California State Water Resources Control Board (SWRCB)) may establish an alternate compliance schedule. After issuance of final NPDES permit, operator must provide impingement mortality standard as soon as practicable as determined by Director, entrainment standard as soon as practicable as determined by Director, and the Director can require interim control measures.

In 2007, the Environmental Protection Agency (EPA) directed the States to use their best professional judgment with regards to Rule 316(b) and NPDES permits while EPA's Rule 316(b) was suspended. The SWRCB chose to proceed with the development of a Statewide Clean Water Act Section 316(b) policy, and on May 4, 2010, SWRCB adopted their Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Policy), which was approved by the Office of Administrative Law (OAL) on September 27, 2010, and became effective October 1, 2010.

On April1, 2010, LADWP submitted to SWRCB its Implementation Plan, which stipulated LADWP's compliance path with the Policy. LADWP chose the Track 1 compliance path with the complete elimination of once-through-cooling (OTC) that required an extended schedule. On July 19, 2011, SWRCB adopted an Amendment to the Policy that allowed for an extended schedule that was negotiated at the hearing. The Amendment was approved by OAL on March 12, 2012. LADWP’s compliance with the SWRCB Policy is also recognized by the EPA as compliant with Rule 316(b).

LADWP’s extended compliance schedule, in compliance with the SWRCB Policy, eliminates OTC at the Harbor and Scattergood Generating Stations before the renewal of their NPDES permits. The Haynes Generating Station final NPDES permit renewal to be issued in 2023/2024 may require studies to provide the information required under Rule 316(b).

LADWP’s approved Implementation Plan stated compliance with NPDES Rule 316(b) would be maintained by continuing with the SWRCB approved schedule for elimination of OTC through repowering. In the FY14-15 LADWP maintained compliance by continuing work on the repowering of Scattergood Unit 3.

The alternative of do nothing or delay in the engineering studies will lead to non-compliance with the regulatory requirements and could result in cease and desist orders, fines, and penalties and/or third-party litigation regarding continued operation of the generating units.

**Job O1333 Statement BM**

Brief Job Description – The Haynes Storm Water Tank Improvement Project (Haynes Project) was executed to address storm water infrastructure concerns within the Haynes Generating Station. The Project consisted of refurbishment and repurposing of the original ‘C’ fuel oil tank for storm water capture and controlled discharge. The project also included storm water collection improvements to grade and capture storm water within the ‘E’ fuel oil tank containment area as well as the A, B, C, and D tank containment area.

The Haynes Project was implemented to address storm water regulatory requirements and to ensure compliance with National Pollution Discharge Elimination System (NPDES) permits including the facility’s Tank Farm permit in addition to the California State General Industrial permit. The project eliminated the potential for permit violations due to the carryover of sediment (resulting in high turbidity in the water) by capturing storm water in affected areas and allowing for settling to occur prior to discharge.

The alternative to utilizing the existing tanks would have been to demolish the existing tanks and prepare for installation of either tanks or a large retention pond which were estimated to be approximately twice the cost of the refurbishment/repurposing of the ‘C’ fuel oil tank.

**Job O1399 – BM Statement**

In order to increase the possibility of potable water conservation, the Los Angeles Department of Water and Power (LADWP) is performing engineering studies to determine the feasibility of utilizing reclaimed water in generation equipment at Haynes, Harbor, Scattergood, and Valley Generating Stations. This is being accomplished by evaluating and base-lining the current Generating Stations’ chemistry and water treatment processes, implementing any necessary process changes or equipment, and conducting a pilot test the equipment using reclaimed water.

The use of reclaimed water at the generating stations will reduce the potable water usage of the current generating equipment. Utilization of reclaimed water without investigating generating equipment compatibility with reclaimed water may result in increased generating equipment breakdowns which would cause an increase in the units’ forced outage rates and a decrease in the units’ availability.

**Job O9778 Statement BM**

 The Scattergood Units 1&2 Repowering Project consists of the engineering design, procurement, construction, and commissioning of a combined steam and gas turbine power block that will replace the existing Scattergood Generating Station (SGS) Units 1&2 which rely on the use of ocean water for cooling purposes. This project will utilize the footprint previously occupied by SGS Unit 3 (currently being dismantled and demolished under Job O9790) and include installation of the most energy efficient power generation equipment with flexible, quick start technology and an air-cooled condenser (ACC) for cooling purposes.

The Scattergood Units 1&2 Repowering Project is necessary to satisfy the California State Water Resource Control Board’s (SWRCB) once-through cooling (OTC) policy which requires coastal electricity generation facilities to comply with cooling system flow and velocity reductions. The cooling water system flow and velocity requirements are too stringent for Scattergood Units 1&2, currently cooled using ocean water, to continue to operate in compliance. The compliance with the OTC policy will only be achieved through the shutdown and decommissioning of Scattergood Units 1&2 which will result in a loss of 297 megawatts of 138-kV power at the center of the west side of the Los Angeles transmission system.

The LADWP transmission system, as it exists today, was not planned nor intended to be operated without in-basin thermal electricity generation. In-basin thermal generation facilities such as Scattergood Generating Station (SGS) help stabilize the voltage on the LADWP transmission circuits. Additionally, SGS provides congestion relief on various distribution circuits throughout our system by preventing transmission overloading. Regulatory requirements dictate that our transmission network has adequate coverage at all times so that circuits are never overloaded. Therefore, eliminating the in-basin thermal generation at Scattergood will limit LADWP’s ability to comply with the North American Electric Reliability Corporation (NERC) Bulk Electric System (BES) standards especially in the service area in close proximity to the SGS.

The alternatives to this project that were considered include construction of the replacement generation at a new site and retrofitting of the existing Units 1&2 steam turbines with an air cooled system instead of using the ocean cooling system as originally designed and constructed. The cost of development of a new electricity generating station on the west side of Los Angeles would be significantly more expensive than replacing the existing facility equipment since there would be incremental land acquisition/development and permitting costs as well as transmission system infrastructure costs to connect to the LADWP system. The cost of retrofitting the cooling system would be potentially 40 to 50 percent of the cost of the new equipment. However, there would be significant concerns with the reliability of the equipment due to the age and condition of the steam boilers and turbines that were installed in the 1950s. Using the existing Unit 1&2 steam boilers retrofitted with an air cooled system would also not support the integration of renewable power into the LADWP system due to the long start-up durations, high minimum generator output (low turndown), and inability to cycle power output (designed for base load operation). The potential initial capital cost savings associated with the cooling system retrofit project compared to the repowering project at the Scattergood facility will be offset by the more flexible and energy efficient combined cycle technology that has currently been proposed through fuel savings alone.

In the FY14-15, the activities consisted primarily of preliminary engineering including the air emissions modeling and permit development, equipment layout development, initial environmental scoping, and initial development of the technical requirements.

**Job O9790 Statement BM**

The Scattergood Unit 3 Demolition Project consists of the isolation, physical separation, abatement, demolition, and disposal of the Scattergood Unit 3 boiler and associated equipment and structures. The project includes the disconnection and separation of interconnected electrical and mechanical systems from the existing facility infrastructure. The project also includes the safe abatement and disposal of all hazardous material and waste associated with the equipment in accordance with regulatory requirements.

The Scattergood Unit 3 Demolition Project is necessary to support both water and air quality regulations. The project will satisfy the South Coast Air Quality Management District’s (SCAQMD) requirement for permanent retirement of Scattergood Generating Station Unit 3 in accordance with the facility’s SCAQMD permit Section H, Condition F52.1 and the September 15, 2011, Amended Settlement Agreement between LADWP and SCAQMD. The complete demolition of Unit 3 will satisfy both the SCAQMD’s permit requirement and the Amended Settlement Agreement. In addition, the demolition project will support the site preparation necessary to build a new combined cycle generating unit which will replace the generating units still utilizing ocean water for cooling purposes.

No alternatives were considered for the demolition of Scattergood Unit 3 due to the regulatory requirement to demonstrate the permanent disablement of the boiler and associated equipment.