

# Agenda Report

October 5, 2015

**TO:** Honorable Mayor and City Council

**THROUGH:** Municipal Services Committee (9/22/15)

**FROM:** Department of Water and Power

**SUBJECT:** STATUS REPORT ON GAS TURBINE UNIT 5 REPOWERING PROJECT

**RECOMMENDATION:**

This report is for information only.

**EXECUTIVE SUMMARY:**

Pasadena Water and Power ("PWP") presents monthly updates on the status of the Gas Turbine Unit 5 ("GT-5") Repowering Project to the Municipal Services Committee ("MSC"). At its September 22, 2015 meeting, the MSC requested that staff provide an informational update to City Council.

Attachment A includes the report provided to the MSC on September 22, 2015 with updates on the current activities and status of the GT-5 Repowering Project. The status report lists current activities, major issues, concerns, project pictures, schedule, financial summary, health and safety record, local workforce utilization, and Pasadena-First Buy-Local activities. PWP also mails a monthly newsletter to power plant neighbors and posts it on its website [www.pwpweb.com/GT5](http://www.pwpweb.com/GT5). The September 2015 Newsletter is included as Attachment B. These updates help ensure that the community is informed about the progress of the project and provide financial transparency.

With the majority of equipment manufactured, delivered and installed, GT-5 has made substantial progress toward completion. Some equipment deliveries and building erection remain to be completed, along with much of the detail work connecting the pieces. Delays in the manufacture of an important piece of electrical equipment may delay completion of the project, however staff and contractors are working diligently to mitigate the impact and maintain the planned June 2016 startup date.

The City Council approved the \$136.9 million project budget on September 29, 2014, and granted the City Manager authority to approve up to \$4 million of contingency change orders for the six major repowering contracts. A total of \$3,374,343 remains in

unspent contingency funds. While a number of change orders are in the works and a few uncertainties remain, PWP anticipates completing the project within budget at this time.

The GT-5 Repowering Project includes goals for local procurement and hiring. Thus far, \$1,383,228 (26%) of the subcontracting and procurement has been spent with Pasadena businesses, and \$1,132,268 (32% of total) in payroll expenses for Pasadena residents has been reported.

### **BACKGROUND:**

On March 16, 2009, the City Council adopted the energy Integrated Resource Plan (“IRP”), a 20-year plan for PWP to deliver reliable and environmentally responsible electricity at competitive rates. One of the key recommendations of the energy IRP was the replacement of the existing Broadway Unit 3 natural gas fired steam generation unit with a new combined cycle unit of about the same generation capacity. The energy IRP was updated on March 5, 2012 and it retained this recommendation.

GT-5 is designed to be a highly flexible natural gas fired generator that can start up within minutes and operate at many different levels up to its maximum rate output of 71 MW. This local generation capacity is essential for maintaining local electric service reliability, following varying electric demands, and integrating intermittent renewable resources into the grid. It also provides reserve capacity needed to meet regulatory and operational requirements, and provides an excellent hedge against soaring electric energy costs during times of regional resource scarcity.

### ***Project History – Major Milestones***

Subsequent to the approval of the energy IRP, PWP proceeded with the planning phase that included preliminary engineering, site investigation, budgeting, environmental approvals and permits. The City Council approved contracts totaling over \$3.5 million for owner’s engineering, air permitting, and environmental permitting services for the Repowering Project.

On April 8, 2013, the City Council certified the Final Environmental Impact Report (“EIR”) for the Repowering Project and, under a separate agenda item, authorized the City Manager to enter into a negotiation with State and Local Building and Construction Council for a Project Labor Agreement (“PLA”). The City-negotiated PLA was signed by the project construction contractor and the Unions, but the City is not a signatory. On August 15, 2013, the South Coast Air Quality Management District issued the permit to construct for GT-5.

Upon certification of the EIR, PWP proceeded with the execution phase of the project. PWP determined that three additional major contracts were required to fully implement the project. The first contract was approved by City Council on July 29, 2013 to General Electric Package Power (“GE”) for an amount not to exceed \$62,550,000 to design, furnish, and deliver fourteen major pieces of equipment, known as the Power Island

Equipment ("PIE"). The second contract was approved by City Council on November 18, 2013 to Process Unlimited International, Inc. for an amount not to exceed \$3,304,000 to provide project and construction management, document control, and other technical support for the project. The third contract for the Balance of Plant ("BOP") design and construction to provide the detailed design, materials for the balance of the plant, construction including installation of the PIE and commissioning of the project was awarded to ARB as approved by City Council on May 19, 2014. GE is providing technical assistance to the BOP contractor during the construction phase and is responsible for performance and emission guarantees.

ARB was given a notice to proceed on June 10, 2014. The first phase of the project was demolition which included removal of an obsolete exhaust stack, underground infrastructure, a layer of organic soil and localized lead contaminated soil. The scope of work included sealing several entrances to the Glenarm Building from several large tunnels. A large storm drain box culvert that ran through the site was also relocated to allow for the construction of the foundations for the new unit. In total 5,700 tons of concrete and asphalt, 180 tons of metal, and 420 cubic yards of wood were removed from the site and recycled. The site was prepared by substantially excavating substructures and contamination, and then it was back-filled with imported soil and compacted. This work considerably exceeded the initial scope of contract which was based on the preliminary subsurface investigation.

ARB transitioned to construction activities in November of 2014. Work started with the forming of foundations for the cooling tower and the turbine and generator. Duct banks for the 17 kV lines, 34 kV lines, and plant distribution were installed. The steam generator and the associated structural steel, control building, and water tanks were erected. The installation of piping between components has started. With the exception of a sound wall that was added by change order, GE has completed engineering services and delivered all of the equipment in their scope. All major equipment supplied by GE been set in place, with the exception of two gas compressors.

### ***Remaining Project Activities***

The remaining construction includes taking delivery and installation of the power distribution center, setting the auxiliary transformers, completing cable pulls and piping runs, installing of auxiliary equipment, completing the control building and making tie-ins with existing plant systems. Initial testing and commissioning of various components is expected to start in January 2016. The combustion turbine is expected to be started for the first time in mid-February, followed shortly thereafter by the first attempt to generate electrical energy. Additional commissioning activities will continue up until the plant is ready for commercial operations, currently scheduled for June 2016. Operating procedures will be developed and power plant staff will be trained before PWP takes over the operation of GT-5.

**Local Participation Plan**

Through the Department of Finance, the City of Pasadena administered a Local Participation Plan (“Plan”) to identify economic opportunities for Pasadena residents and businesses. This Plan included targeted outreach efforts that were facilitated by staff, the contractors, the unions, and community partners. The City negotiated a Project Labor Agreement (“PLA”) with the State and Local Building and Construction Council. Under the terms of the PLA, ARB and their subcontractors were obligated to satisfy 25% of their payroll with Pasadena residents. As of August, 32% of the certified payroll paid by ARB and its subcontractors had been paid to Pasadena residents. Additionally, ARB also has to satisfy 15% of its target for subcontracting and procurement with Pasadena businesses. As of the end of August, ARB is reporting \$1,383,228 or 26% of its subcontracting and procurement has been spent with Pasadena businesses.

**Safety**

The contractors have demonstrated an exceptional safety record. As of August 2015 there were 100,846 man-hours worked with no lost time incidents and one reportable health and safety related injury.

**Financial Summary**

Tables I and II summarize the project budget and funding. A detailed Financial Summary is included as Exhibit- 1 of Attachment A.

**Table -1 – Summary of the Current Budget**

<b>Currently Approved Budget</b>	<b>\$ 136,904,183</b>
<b>Currently Committed Expenditures</b> (contracts, contingencies, legal, staff costs and Art funding)	<b>\$ 133,529,840</b>
<b>Uncommitted Remaining Balance</b> (\$136,904,183 - 133,529,840)	<b>\$ 3,374,343</b>

**Table -2 – Summary of the Funding**

<b>Funding for the Repowering Project</b>	<b>Amount</b>
<b>Equity - Light and Power Fund</b>	<b>\$20,000,000</b>
<b>Debt</b> (Electric Revenue Bond Issuance)	
a. <b>2013A Bonds</b>	<b>\$54,686,250</b>
b. To be reimbursed from <b>Letter of Credit</b>	<b>\$62,217,933</b>
<b>Total</b>	<b>\$136,904,183</b>

Thus far, approximately \$90 million, or 65% of the project budget, have been expended.

### ***Risks and Uncertainties***


While the majority of the project uncertainties have past, there are several ongoing issues that represent schedule or budget risk. Some of the highlights include:

- ARB has requested a thirteen week delay to commercial operation due to a delayed delivery of the power distribution center, a core electrical component. ARB has been able to partially mitigate the impact of the late delivery, and collaborative efforts continue to bring the commercial operation date back to the original date.
- The cost of erecting the steam turbine enclosure has increased as necessary to accommodate equipment changes. The modified work will be done on a time and material basis with an estimated amount of \$512,856.
- There is a scope gap issue concerning the design and supply of the piping from the Ammonia Flow Control Unit to the injection points on the OTSG. An agreement in principle has been reached to split the cost of the ammonia piping design and materials with ARB.
- The addition of sound walls has resulted in additional work that estimated to cost approximately \$260,000 in total
- Due to changes in the gas compressor enclosure, a fire protection system is now required. While staff will seek to recover partial costs from GE, the estimated cost of \$465,560 is included in ARB Change Order #7.

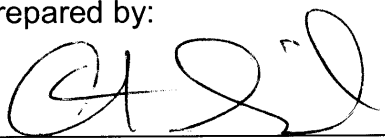
These changes are to be expected within the scope of a complex construction project and the costs are not expected to exceed the contingency funds included in the overall budget.

Additional details may be found in Attachment A.

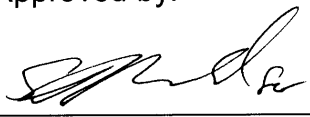
Respectfully submitted by,

  
\_\_\_\_\_  
ERIC R. KLINKNER  
Interim General Manager  
Pasadena Water and Power

Prepared by:

  
\_\_\_\_\_  
Art Silva  
Power Production Superintendent

Approved by:

  
\_\_\_\_\_  
MICHAEL J. BECK  
City Manager

**ATTACHMENTS:**

- Attachment A - Glenarm Repower Project Status Report
- Attachment B – September 2015 “Powering Pasadena” Newsletter